Hydrologic Report

Revised September 27, 2019

MAUPIN™
engineering

Sleep Inn

Prepared for:

Anil Patel
HOS Management
1000 Towne Center Boulevard
Pooler, Georgia 31322

114 West 42nd Street
Savannah, Georgia 31401

o: 912.667.7757
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Hydrologic Report

This site is located near the intersection of Highway 80 and Burnsed Boulevard in Garden City, Georgia. This site is not within a mapped floodplain.

The project consists of the construction of a new hotel. The proposed area of disturbance is approximately 2.06ac and consists of 1.29 ac of new impervious area. All basins drain to Garden City's MS4.

This hydrologic study was preformed using the SCS method and HydroCAD software by Software Solutions, LLC. Please refer to the attached computer summary printouts and exhibits for Time of Concentration calculations and flow computations.

The post development flow does not exceed the pre development discharge for the storms indicated as required by Garden City's Stormwater Management Design Manual.

There are no wetlands or other significant natural resources or aquatic habitats associated with the site.

Pre and Post Development Hydrologic Analysis:

This hydrologic study was preformed using the SCS method and HydroCAD software by Software Solutions, LLC. Please refer to the attached computer summary printouts and exhibits for Time of Concentration calculations and flow computations.

Storm water Runoff (Q cfs)

Predevelopment	Area (ac)	"CN"	Tc (min.)	1-year 3.60"	5-year 6.00"	10-year 6.72"	25-year 7.92"	50-year 8.88"	100-year 9.84"
Basin A	2.06	78	12	3.06	7.06	8.31	10.41	12.10	13.80
Post-development									
Basin A	0.58	97	20	1.78	2.31	2.59	3.06	3.44	3.81
Basin B	0.55	97	20	1.29	2.19	2.46	2.90	3.26	3.62
Pond A	--	--	**Q** **WSE** **V**	**1.93** **5.36** **4,561**	**4.07** **5.98** **5,473**	**4.91** **6.08** **5,592**	**6.14** **6.19** **5,715**	**6.76** **6.23** **5,767**	**7.31** **6.27** **5,814**
Bypass A	0.75	84	5	1.78	3.65	4.22	5.16	5.91	6.66
Bypass B	0.18	90	5	0.52	0.95	1.08	1.30	1.47	1.64
Combined Peak Flow	2.06			**2.99**	**5.88**	**6.79**	**8.57**	**9.65**	**10.81**

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10% Downstream Analysis

The study point for the 10% analysis was taken as the yard inlet immediately downstream of the proposed development. This basin associated with this inlet is a total of 35 ac+/-. The proposed development is 2.06 ac or 6% of the basin area.

The pre to post development calculations at this study point show a decrease in the peak rate or volume of stormwater flow from the pre to the post development case.

Stormwater Runoff (Q cfs)

	Area (ac)	1-year 3.60"	10-year 6.72"	50-year 8.88"	100-year 9.84"
Pre-Development	35	43.24	100.50	140.26	157.85
Post-Development	35	43.19	99.37	138.39	155.65

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This AGREEMENT, made and entered into this ___ day of _____, 20_____, by and between _____HOS management, Inc_____ his successors and assigns, including but not limited to any homeowners association, commercial developer, holder of any portion of the below described property, and/or similar (hereinafter called the "Landowner"), and the City of Garden City, Georgia; hereinafter called the "City". WITNESSETH, that WHEREAS, the Landowner is the owner of certain real property described as (Chatham County Tax Map/Parcel Identification Number) ___6-0020-04-004_____ and recorded by deed in the land records of Chatham County, Georgia, Deed Book ___41S_____ Page ___28_____, hereinafter called the "Property".

WHEREAS, the Landowner is proceeding to develop the property and/or build upon the property; and

WHEREAS, the Stormwater Management and Operations and Maintenance (O&M) Plan; hereinafter called "the Plan", which is expressly made a part hereof, as approved or to be approved by the City, provides for management of stormwater runoff for the property; and

WHEREAS, the City and the Landowner, its successors and assigns, agree that the health, safety, and welfare of the residents of Garden City, Georgia, require that stormwater management facilities be constructed and maintained on the Property and in accordance with the Plan; and

WHEREAS, the City requires that stormwater management facilities as shown within the Plan be constructed and adequately maintained by the Landowner, its successors and assigns.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The stormwater management facilities shall be constructed and/or upgraded as well as maintained by the Landowner, its successors and assigns, in accordance with the specifications identified in the Plan.

2. The Landowner, its successors and assigns, shall adequately maintain the stormwater management facilities and perform the work necessary to keep those facilities in good working order at all times, as described in the Plan. This includes all pipes, channels or other conveyances built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater runoff. Adequate maintenance is herein defined as good working condition so that these facilities are performing their approved design functions.

3. The Landowner, its successors and assigns, shall inspect the stormwater management facility and submit an inspection report annually to the City Manager (or his designee). The purpose of the inspection is to ensure safe and proper functioning of the stipulated facilities. The inspection shall cover all applicable stormwater management facilities, including but not limited to, conveyance measures, berms, outlet structures, pond areas, etc. Deficiencies shall be noted in the inspection report along with a schedule for repair.The inspection procedures, frequency and report shall follow the procedures established and approved in the Plan.

4. The Landowner, its successors and assigns, hereby grant permission to the City, its authorized agents and employees, to enter upon the Property and to inspect the stormwater management facilities whenever the City deems necessary and with reasonable notice having been given to the Landowner. The City shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.

5. In the event the Landowner, its successors and assigns, fails to maintain the stormwater management facilities in good working condition acceptable to the City, the City may issue citations to the Landowner for resulting, continuing ordinance violations (as set forth in the Garden City Code of Ordinances), until such time as the issues are satisfactorily resolved. Additionally, the City may enter upon the Property and implement the necessary measures to correct deficiencies identified in the inspection report and to recover the costs of such repairs from the Landowner, its successors and assigns through the appropriate means. This provision shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner outside of the easement for the stormwater management facilities. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said facilities, and in no event shall this AGREEMENT be construed to impose any such obligation on the City.

6. Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management facilities (including sediment removal) is outlined on the approved plan, the schedule will be followed.

7. In the event the City, pursuant to this AGREEMENT, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder.

8. This Agreement imposes no liability of any kind whatsoever on the City and the Landowner agrees to hold the City harmless from any liability in the event the stormwater management facilities fail to operate properly.

9. This AGREEMENT shall be recorded among the land records of Chatham County, Georgia, and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners association.

CERTIFICATION

OWNER:

WITNESS the following signatures and seals:

By: _____

_Anil Patel - Owner_____
(Type Name and Title)

GARDEN CITY, GEORGIA:

By: _____

_____
(Type Name and Title)

Date:_____

The foregoing AGREEMENT was acknowledged before me this ____ day of _____, 20___, by

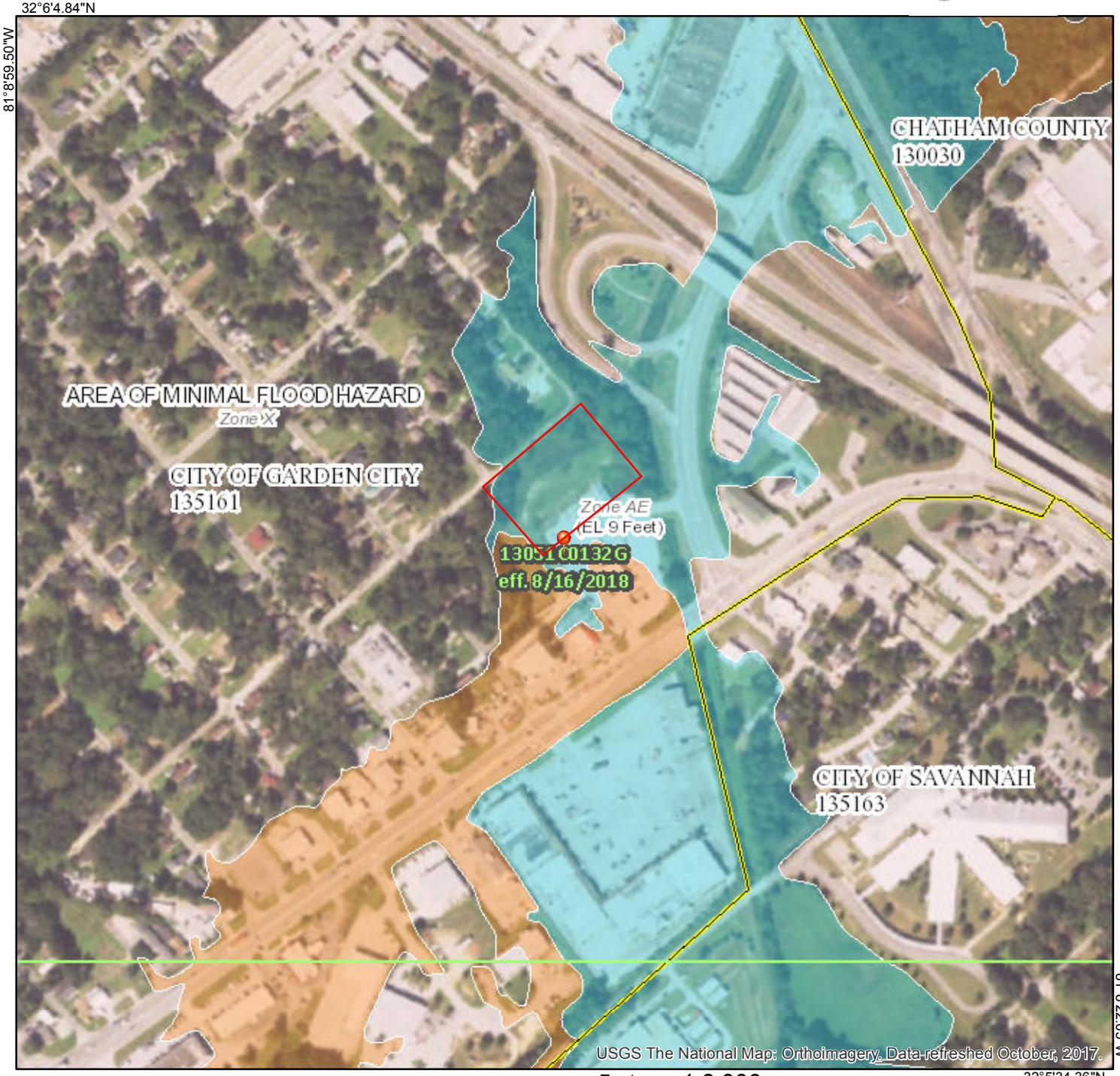
_____.

_____
NOTARY PUBLIC

My Commission Expires: _____

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 — Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- 513 — Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/23/2019 at 8:28:50 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Map Scale: 1:1,020 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bryan and Chatham Counties, Georgia
Survey Area Data: Version 13, Sep 13, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 30, 2015—May 21, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Okc	Ogeechee-Urban land complex	2.1	100.0%
Totals for Area of Interest		**2.1**	**100.0%**

Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Site Data

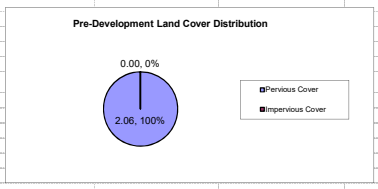
Site Name: Texas Road House - Montgomery Cross Roads

data input cells
calculation cells
constant values

Step 1: Enter Site Information

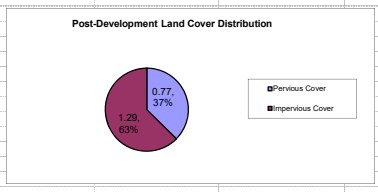
Pre-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	2.06	2.06
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	2.06

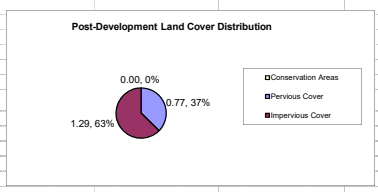


Post-Development Land Cover (acres)

Land Cover Type	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	0.77	0.77
Impervious Cover	0.00	0.00	0.00	1.29	1.29
				Total	2.06



Runoff Reduction Rainfall Event (inches)	1.2
Post-Development Site Imperviousness (%)	63%
Post-Development Site Runoff Coefficient, Rv	0.61
Target Runoff Reduction Volume, RRv (acre-feet)	0.13
Target Runoff Reduction Volume, RRv (cubic feet)	5,506

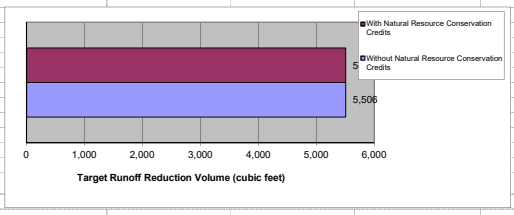


Step 2: Apply Better Site Planning Techniques

Natural Resource Conservation Credits	HSG A Soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Primary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Secondary Conservation Areas (acres)	0.0	0.0	0.0	0.0	0.0
Total (acres)					0.00

Target Runoff Reduction Volume with Natural Resource Conservation Credits, RRv

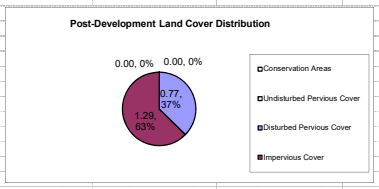
Target Runoff Reduction Volume, RRv (acre-feet)	0.13
Target Runoff Reduction Volume, RRv (cubic feet)	5,506



Step 3: Apply Better Site Design Techniques

Reduced Clearing and Grading Credits

	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Total
Undisturbed Pervious Cover (Acres)	0.0	0.0	0.0	0.0	0.00



Revised Post-Development Land Cover (acres)

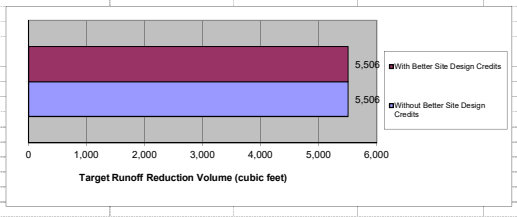
Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.77	0.77
Impervious Cover	0.00	0.00	0.00	1.29	1.29
				Total	2.06

Restoration of Disturbed Pervious Surfaces

Soil Restoration (Acres)	0.0
Site Reforestation/Vegetation (Acres)	0.0
Soil Restoration w/ Site Reforestation/Revegetation (Acres)	0.0

Target Runoff Reduction Volume After Application of Better Site Design Credits, RRv

Target Runoff Reduction Volume, RRv (acre-feet)	0.13
Target Runoff Reduction Volume, RRv (cubic feet)	5,506



Note: Remainder of Better Site Design Techniques are considered to be "self-crediting."

Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area A

Drainage Area Information

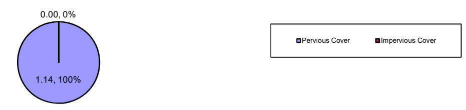
Drainage Area A Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	1.14	1.14
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	1.14

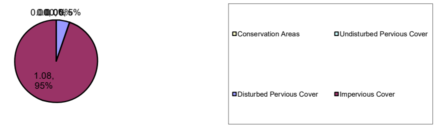
Drainage Area A Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.06	0.06
Impervious Cover	0.00	0.00	0.00	1.08	1.08
				Total	1.14

Drainage Area A Pre-Development Land Cover Distribution



Drainage Area A Post-Development Land Cover Distribution



Low Impact Development Practices

Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
Alternatives to Impervious Surfaces															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Infiltration Basin 1	0.86	0.66	2774.8	100% of storage volume	0.0	2774.8	0.0	2774.8	Surface Area x (Ponding Depth + Depth of Planting Bed x Void Ratio	2400.0	2400.0	374.8	2400.0	374.8	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**0.86**	**0.66**									**2400.0**		**2400.0**		

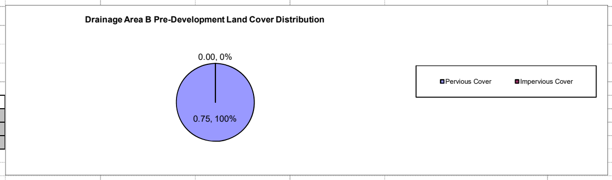
Coastal Stormwater Supplement Site Planning & Design Worksheet
Revised July 2014

Drainage Area B

Drainage Area Information

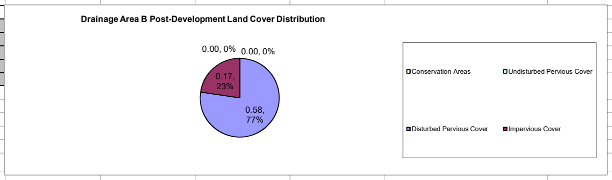
Drainage Area B Pre-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Pervious Cover	0.00	0.00	0.00	0.75	0.75
Impervious Cover	0.00	0.00	0.00	0.00	0.00
				Total	0.75



Drainage Area B Post-Development Land Cover (acres)

Land Cover Type	HSG A soils	HSG B Soils	HSG C Soils	HSG D Soils	Totals
Conservation Areas	0.00	0.00	0.00	0.00	0.00
Undisturbed Pervious Cover	0.00	0.00	0.00	0.00	0.00
Disturbed Pervious Cover	0.00	0.00	0.00	0.58	0.58
Impervious Cover	0.00	0.00	0.00	0.17	0.17
				Total	0.75



Low Impact Development Practices

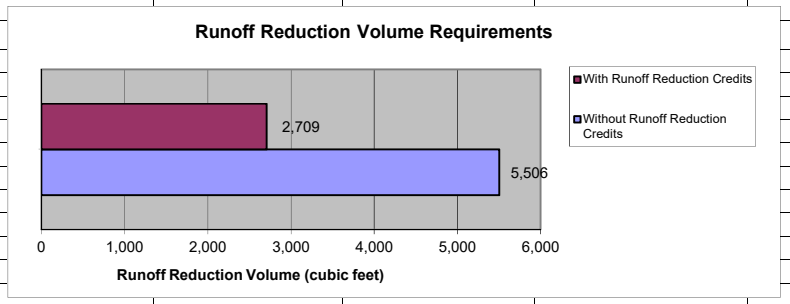
Low Impact Development Practice	Size of Contributing Drainage Area (acres)	Impervious Cover in Contributing Drainage Area (acres)	Direct Runoff Reduction Volume Received by Practice (cubic feet)	Description of Runoff Reduction Credit	Runoff Reduction Volume Received from Upstream Practices	Total Runoff Reduction Volume Received by Practice (cubic feet)	Treatment Volume Received from Upstream Practices (cubic feet)	Total Treatment Volume Received by Practice (cubic feet)	Method for Calculating Storage	Storage Volume Provided by Practice (cubic feet)	Adjustment to Runoff Reduction Volume (cubic feet)	Remaining Runoff Reduction Volume (cubic feet)	Adjustment to Treatment Volume (cubic feet)	Remaining Treatment Volume (cubic feet)	Downstream Practice to be Employed
Alternatives to Impervious Surfaces															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
"Receiving" Low Impact Development Practices															
Simple Downspout Disconnection, C/D Soils 1	0.17	0.17	703.5	30% of volume received by the practice	0.0	703.5	0.0	703.5	N/A	N/A	211.0	492.4	211.0	492.4	Vegetated Filter Strip, C/D Soils 1
Vegetated Filter Strip, C/D Soils 1	0.58	0.00	126.3	30% of volume received by the practice	492.4	618.8	492.4	618.8	N/A	N/A	185.6	433.1	185.6	433.1	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Treatment Only Practices															
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
None	0.00	0.00	0.0	N/A	0.0	0.0	0.0	0.0	N/A	N/A	0.0	0.0	0.0	0.0	
Totals	**0.75**	**0.17**									**396.7**		**396.7**		

Coastal Stormwater Supplement Site Planning & Design Worksheet

Revised July 2014

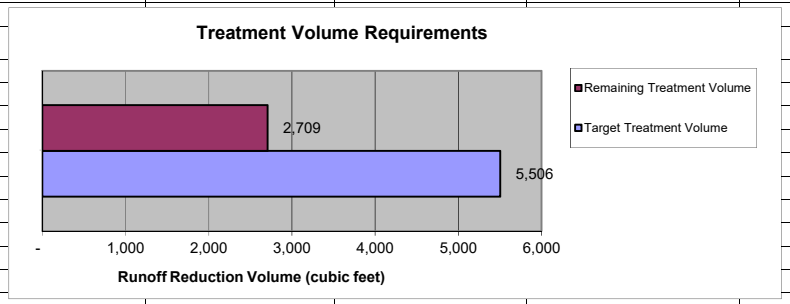
Stormwater Runoff Reduction Summary

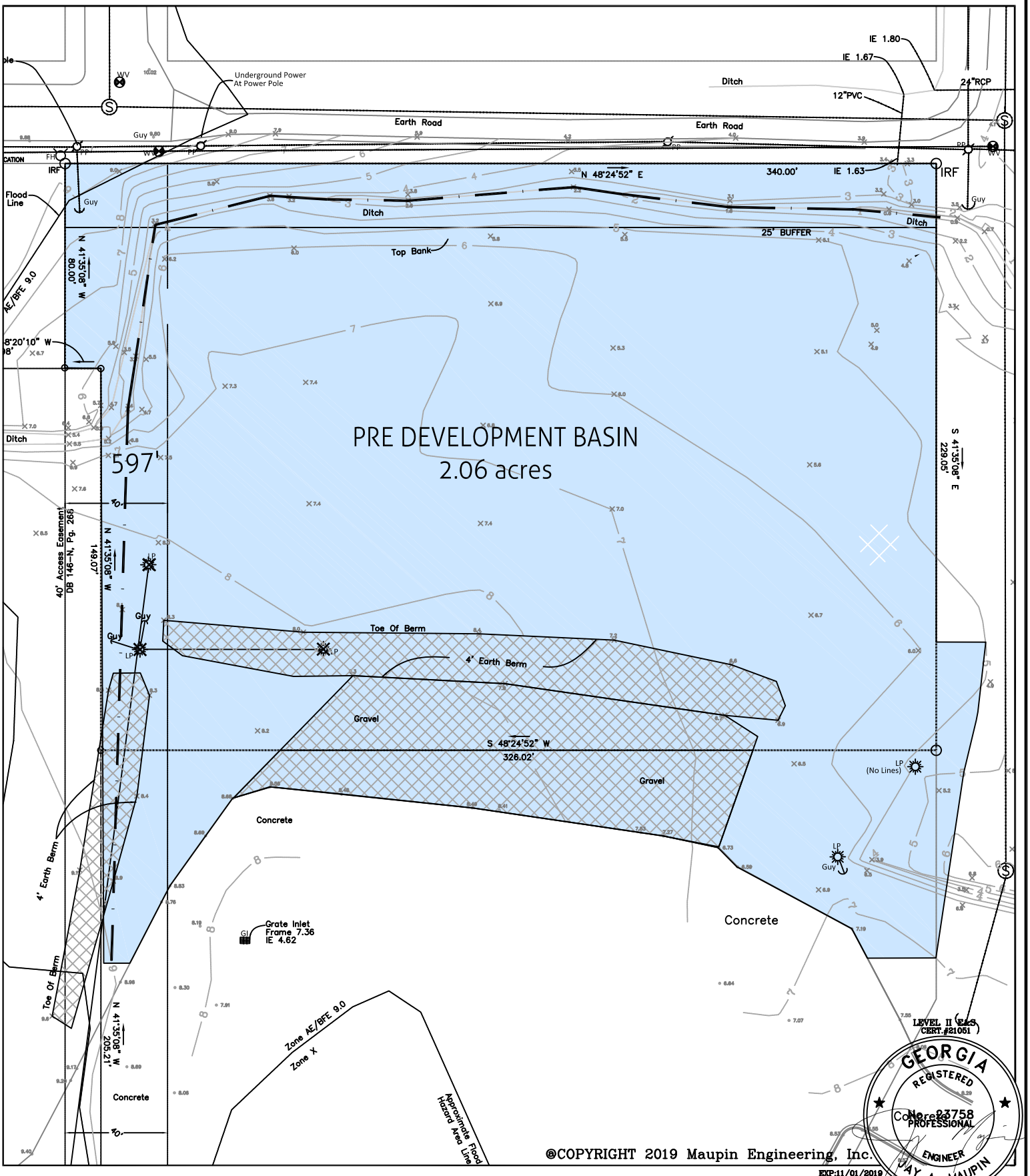
Target Runoff Reduction and Treatment Volume, RRv (cubic feet)	5,506
Total Adjustment to Runoff Reduction Volume, RRv (cubic feet)	2,797
Percentage of Target Runoff Reduction Volume Achieved	51%
Runoff Reduction Volume Achieved (in)	0.61
Runoff Reduction Volume Remaining (cubic feet)	2,709



Note: If any of the target runoff reduction volume cannot be reduced on the development site, due to site characteristics or constraints, it should be intercepted and treated in one or more stormwater management practices that: (1) provide for at least an 80 percent reduction in TSS loads; and (2) reduce nitrogen and bacteria loads to the maximum extent practical.

Treatment Volume Achieved (cubic feet)	2,797
Treatment Volume Remaining (cubic feet)	2,709





LEVEL II (E&S)
CERT.#21051

GEORGIA
REGISTERED
No. 23758
PROFESSIONAL
ENGINEER
JAY A. MAUPIN
EXP:11/01/2019

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114 WEST 42nd STREET
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GENERAL@MAUPINENGINEERING.COM

PRE-DEVELOPMENT BASIN

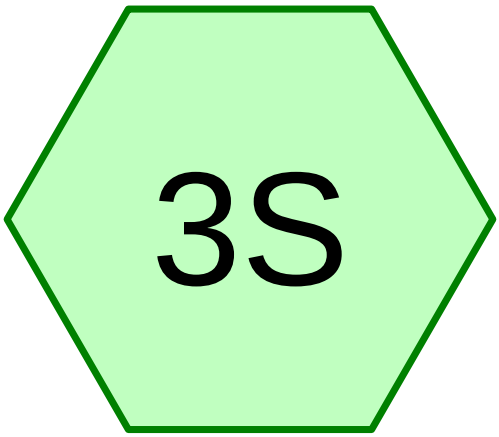
Sleep Inn / Main Stay

25 0 50
SCALE: 1" = 50'

DRWN: MK 7-29-2019
CHK'D: JAM DATE

SHEET NO.
1 of 1
822-18-03
PROJECT NO.

SLEEP INN_072419.DWG



Predevelopment

Subcat Reach Pond Link

Routing Diagram for Sleep Inn PRE
Prepared by {enter your company name here}, Printed 9/27/2019

Project Notes

Rainfall events imported from "Post.hcp"

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.089	91	Gravel roads, HSG D (3S)
1.973	77	Woods, Good, HSG D (3S)
2.062	**78**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
2.062	HSG D	3S
0.000	Other	
2.062		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.089	0.000	0.089	Gravel roads	3S
0.000	0.000	0.000	1.973	0.000	1.973	Woods, Good	3S
0.000	**0.000**	**0.000**	**2.062**	**0.000**	**2.062**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>1.45"
Tc=12.0 min CN=78 Runoff=3.06 cfs 0.249 af

Total Runoff Area = 2.062 ac Runoff Volume = 0.249 af Average Runoff Depth = 1.45"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

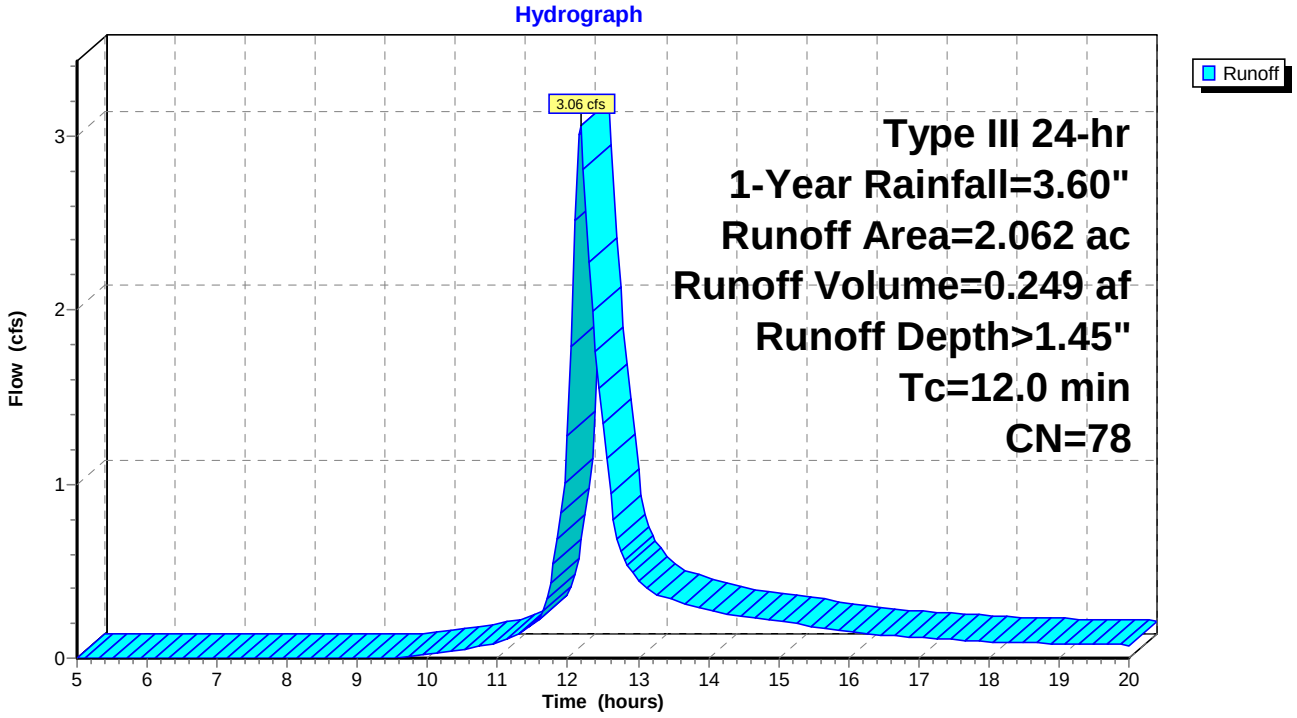
Runoff = 3.06 cfs @ 12.17 hrs, Volume= 0.249 af, Depth> 1.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>3.34"
Tc=12.0 min CN=78 Runoff=7.06 cfs 0.574 af

Total Runoff Area = 2.062 ac Runoff Volume = 0.574 af Average Runoff Depth = 3.34"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

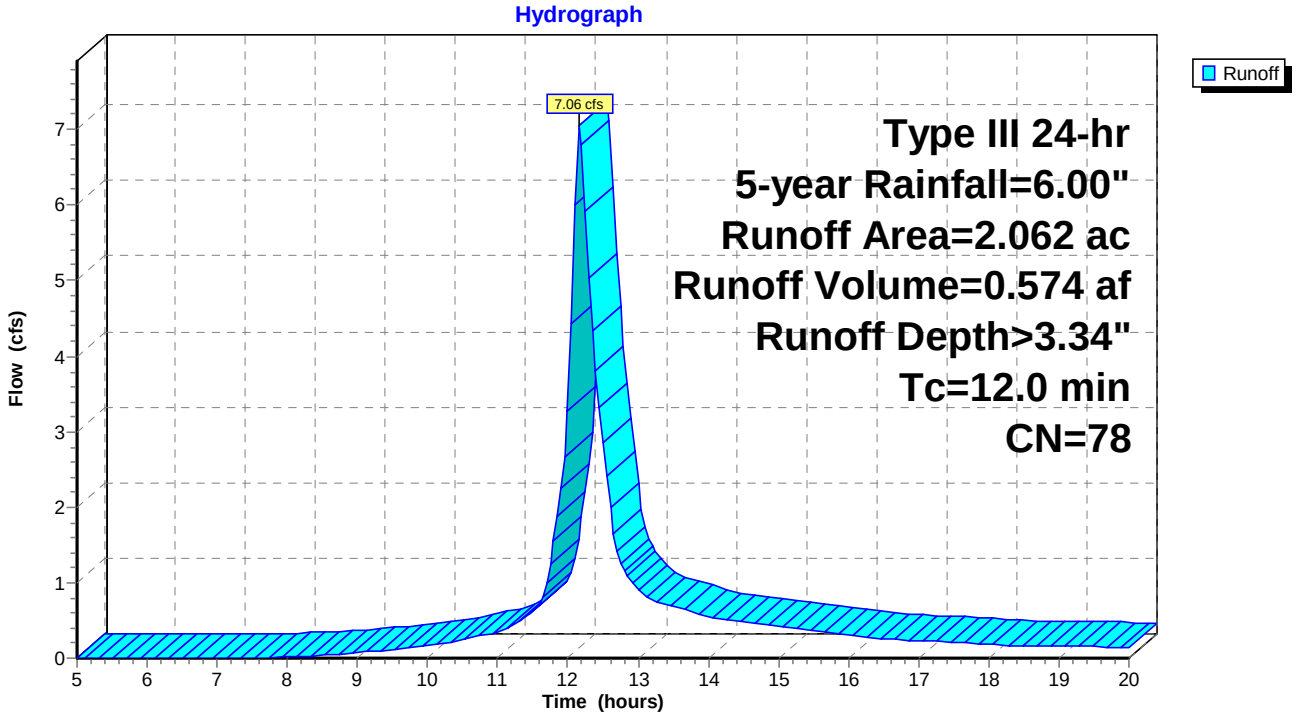
Runoff = 7.06 cfs @ 12.17 hrs, Volume= 0.574 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 5-year Rainfall=6.00"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>3.95"
Tc=12.0 min CN=78 Runoff=8.31 cfs 0.679 af

Total Runoff Area = 2.062 ac Runoff Volume = 0.679 af Average Runoff Depth = 3.95"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

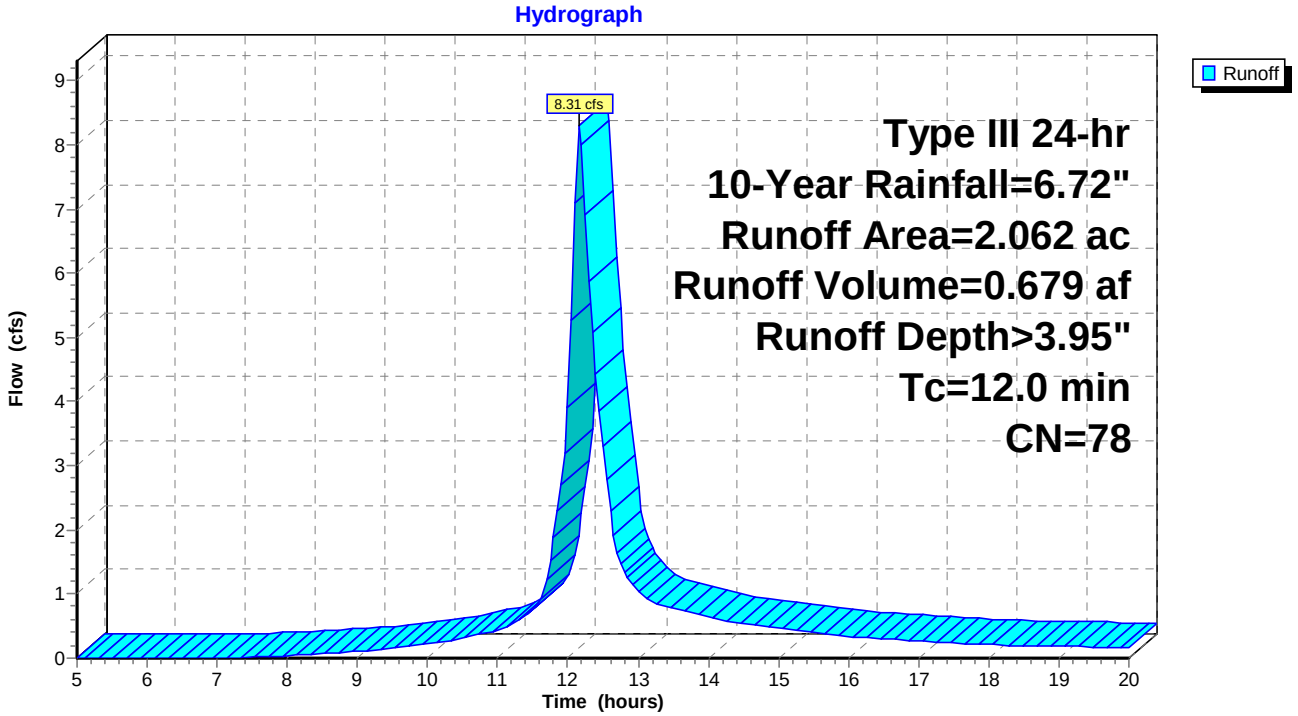
Runoff = 8.31 cfs @ 12.17 hrs, Volume= 0.679 af, Depth> 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>4.99"
Tc=12.0 min CN=78 Runoff=10.41 cfs 0.857 af

Total Runoff Area = 2.062 ac Runoff Volume = 0.857 af Average Runoff Depth = 4.99"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

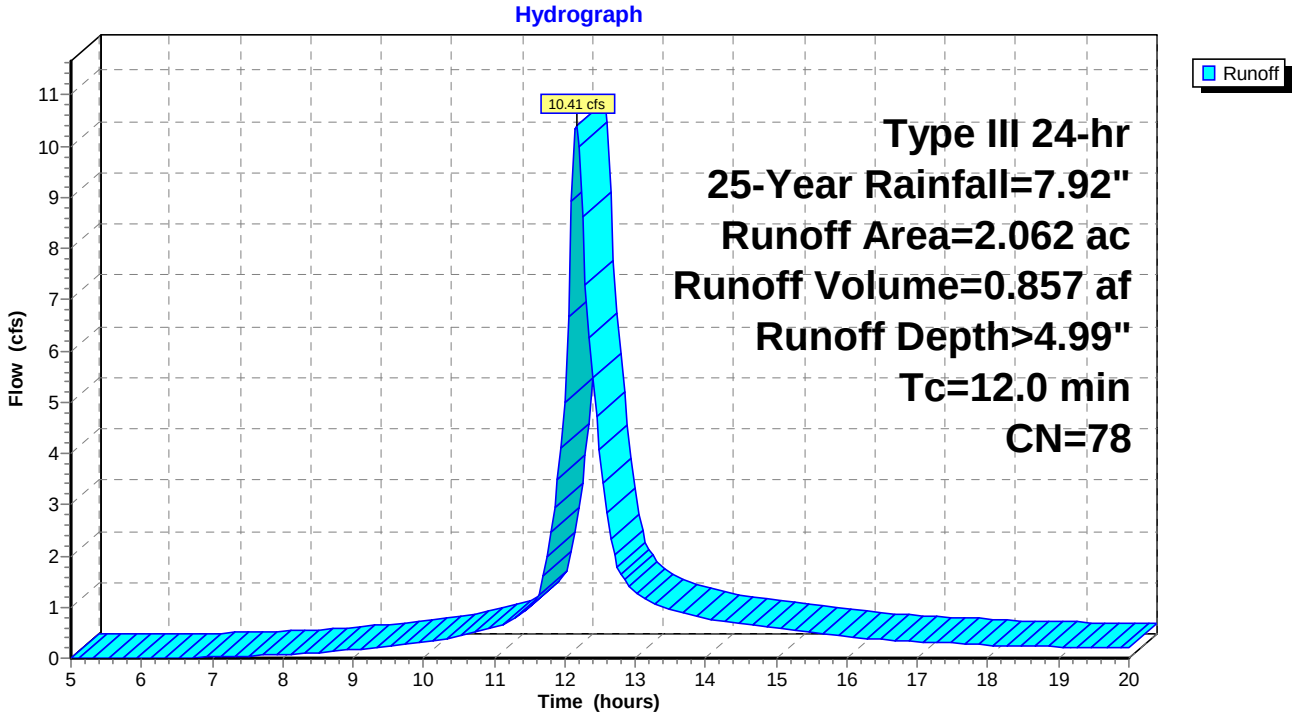
Runoff = 10.41 cfs @ 12.16 hrs, Volume= 0.857 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=7.92"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>5.84"
Tc=12.0 min CN=78 Runoff=12.10 cfs 1.003 af

Total Runoff Area = 2.062 ac Runoff Volume = 1.003 af Average Runoff Depth = 5.84"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

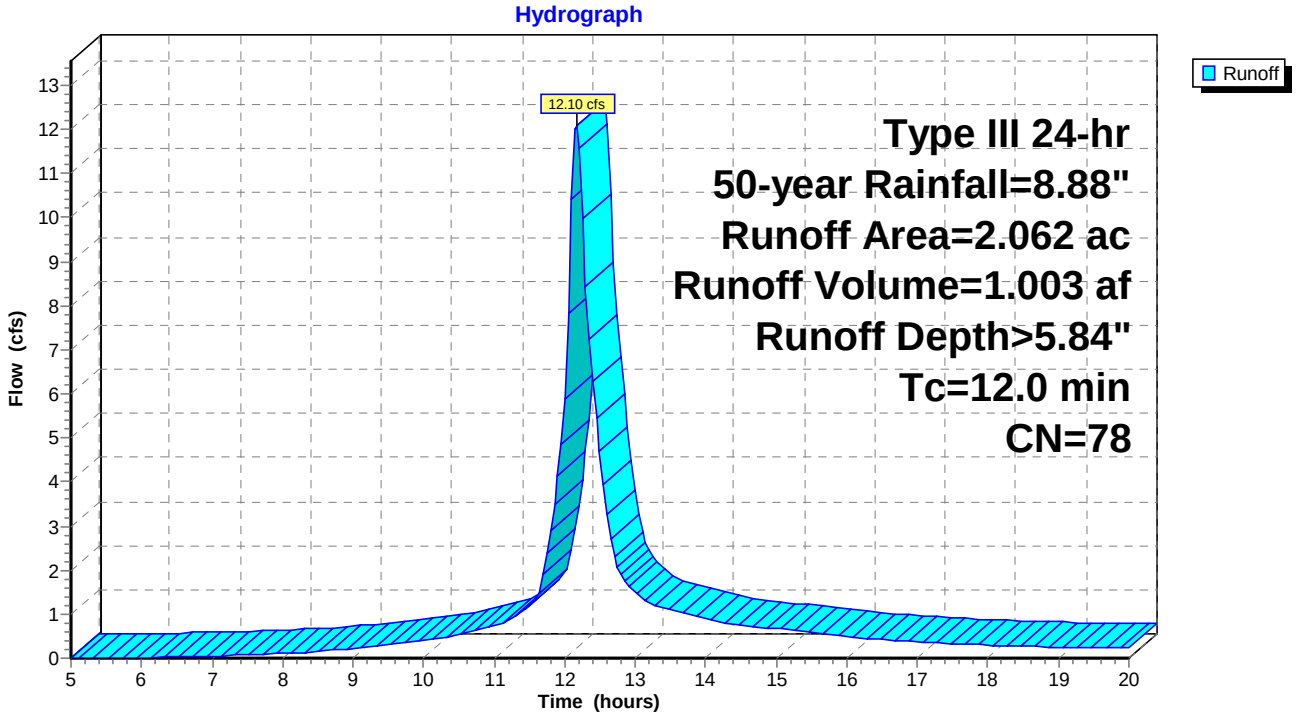
Runoff = 12.10 cfs @ 12.16 hrs, Volume= 1.003 af, Depth> 5.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 3S: Predevelopment Runoff Area=2.062 ac 0.00% Impervious Runoff Depth>6.69"
Tc=12.0 min CN=78 Runoff=13.80 cfs 1.150 af

Total Runoff Area = 2.062 ac Runoff Volume = 1.150 af Average Runoff Depth = 6.69"
100.00% Pervious = 2.062 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 3S: Predevelopment

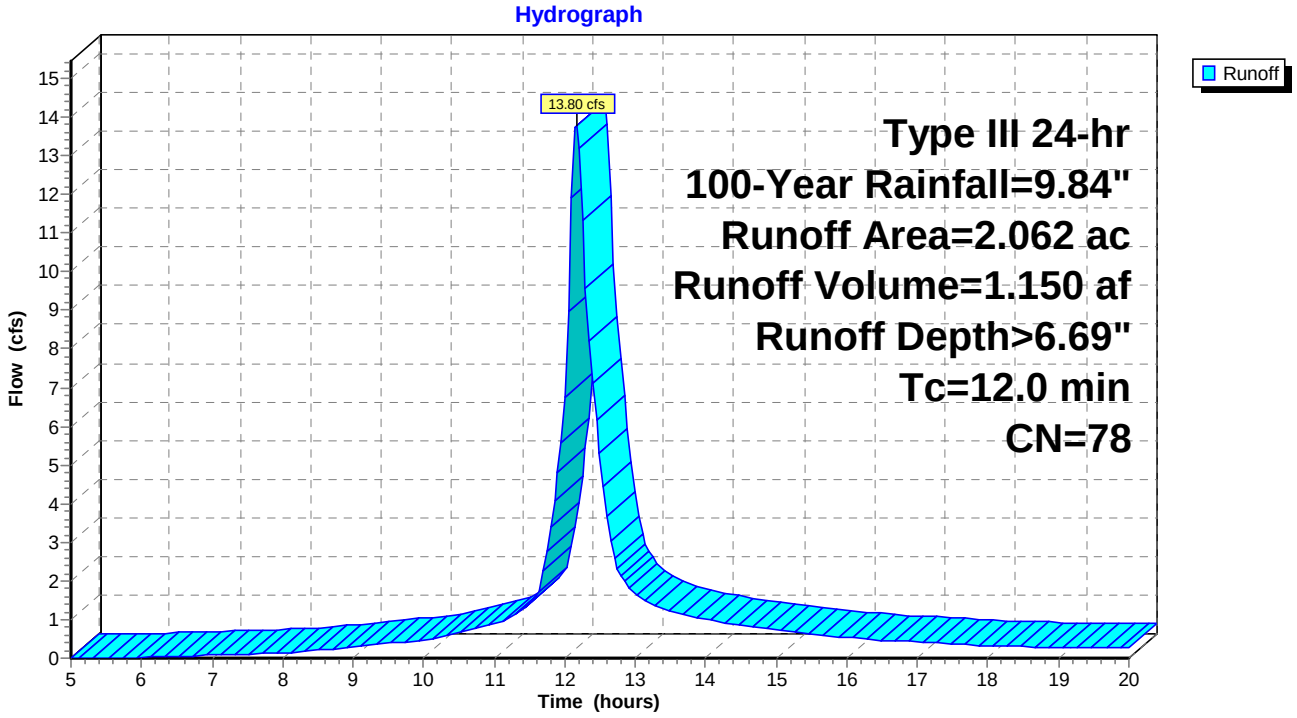
Runoff = 13.80 cfs @ 12.16 hrs, Volume= 1.150 af, Depth> 6.69"

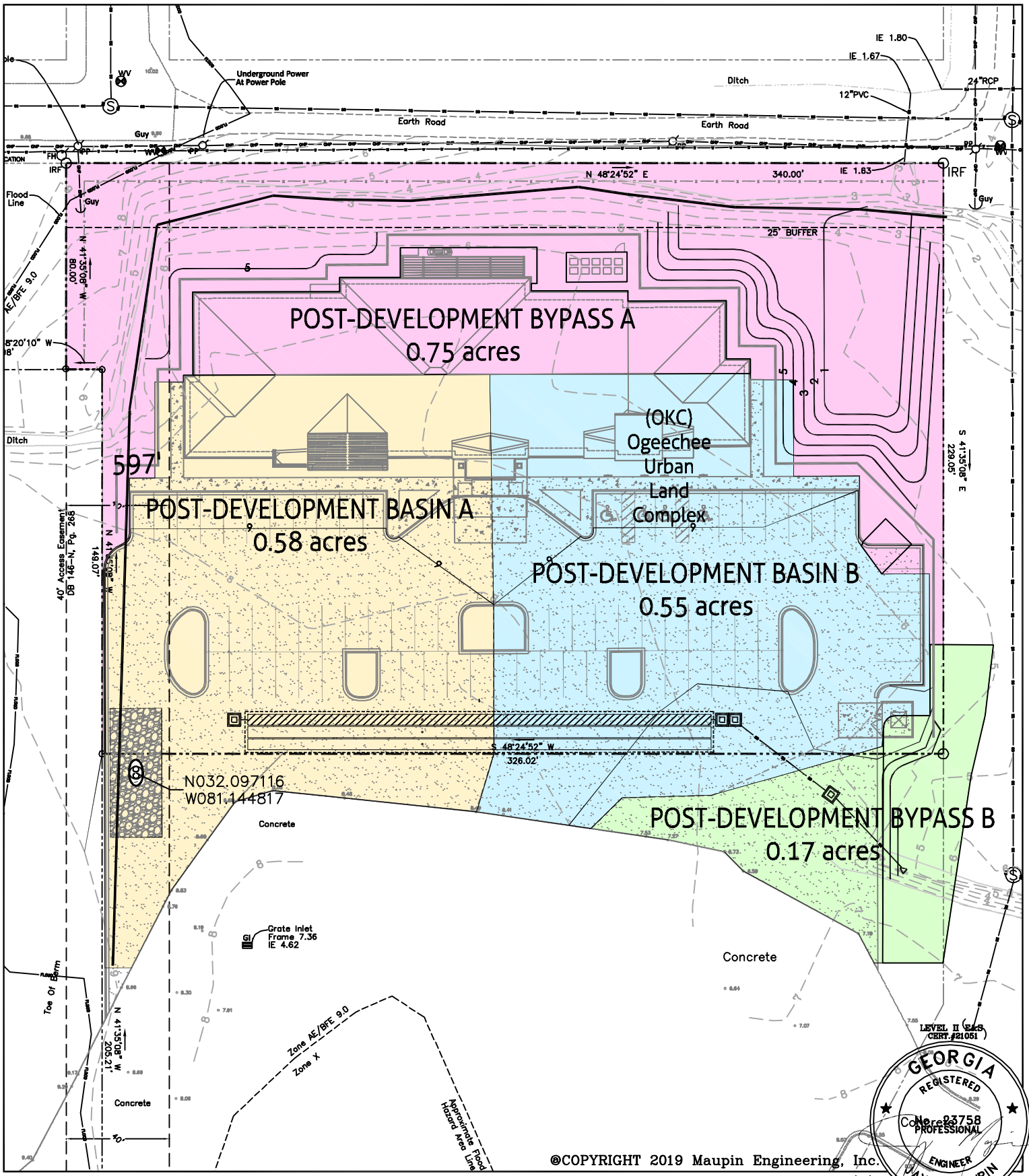
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
0.089	91	Gravel roads, HSG D
1.973	77	Woods, Good, HSG D
2.062	78	Weighted Average
2.062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry,**

Subcatchment 3S: Predevelopment





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SAVANNAH, GA 31401
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GENERAL@MAUPINENGINEERING.COM

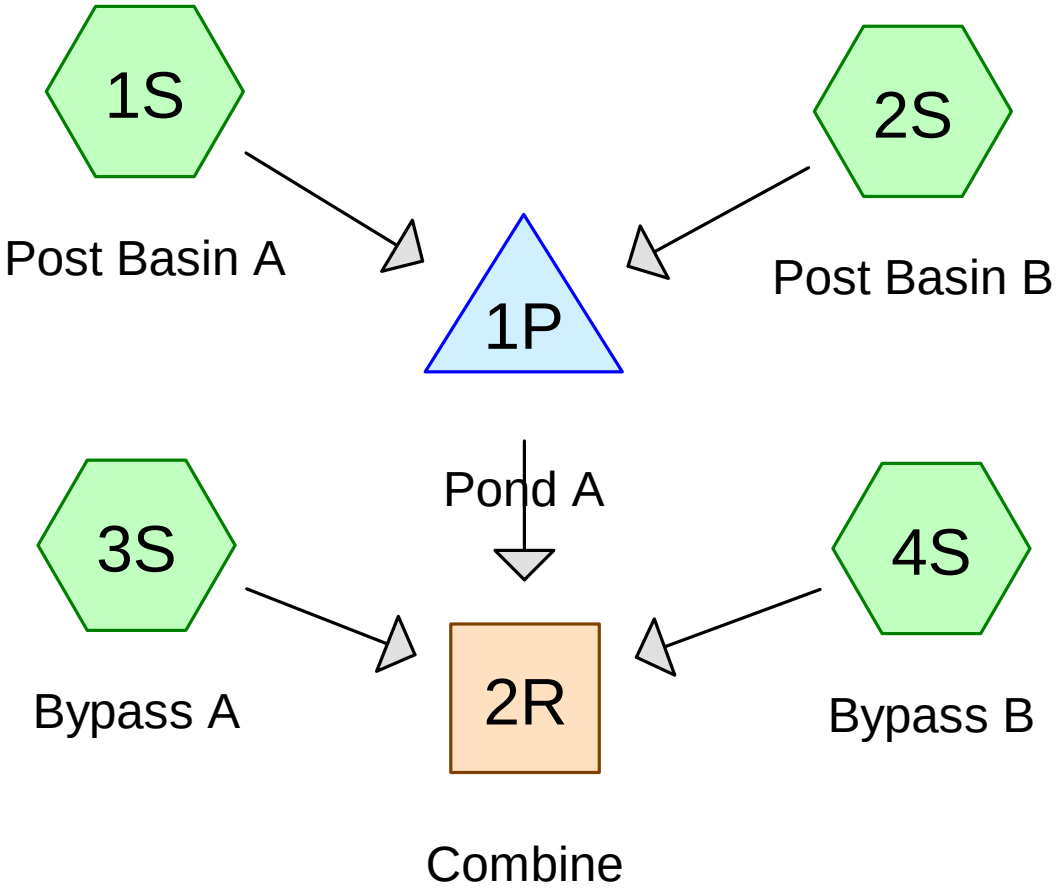
POST-DEVELOPMENT BASINS

Sleep Inn / Main Stay

25 0 50
SCALE: 1" = 50'

DRWN: MK 9-27-2019
CHK'D: JAM DATE

SHEET NO.
1 of 1
822-18-03
PROJECT NO.



Subcat Reach Pond Link

Routing Diagram for Sleep Inn Post
Prepared by {enter your company name here}, Printed 10/25/2019

Project Notes

Rainfall events imported from "Sleep Inn PRE.hcp"

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.685	80	>75% Grass cover, Good, HSG D (1S, 2S, 3S, 4S)
0.560	98	Paved parking & roofs (1S)
0.625	98	Paved parking, HSG D (2S, 4S)
0.185	98	Roofs, HSG D (3S)
2.055	**92**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.495	HSG D	1S, 2S, 3S, 4S
0.560	Other	1S
2.055		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.685	0.000	0.685	>75% Grass cover, Good	1S, 2S, 3S, 4S
0.000	0.000	0.000	0.625	0.000	0.625	Paved parking	2S, 4S
0.000	0.000	0.000	0.000	0.560	0.560	Paved parking & roofs	1S
0.000	0.000	0.000	0.185	0.000	0.185	Roofs	3S
0.000	**0.000**	**0.000**	**1.495**	**0.560**	**2.055**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>3.05"
Tc=20.0 min CN=97 Runoff=1.34 cfs 0.148 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>3.05"
Tc=20.0 min CN=97 Runoff=1.27 cfs 0.140 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>1.89"
Tc=5.0 min CN=84 Runoff=1.68 cfs 0.118 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>2.40"
Tc=5.0 min CN=90 Runoff=0.48 cfs 0.035 af

Reach 2R: Combine Inflow=2.99 cfs 0.381 af
Outflow=2.99 cfs 0.381 af

Pond 1P: Pond A Peak Elev=5.36' Storage=4,561 cf Inflow=2.61 cfs 0.287 af
Outflow=1.93 cfs 0.228 af

Total Runoff Area = 2.055 ac Runoff Volume = 0.440 af Average Runoff Depth = 2.57"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

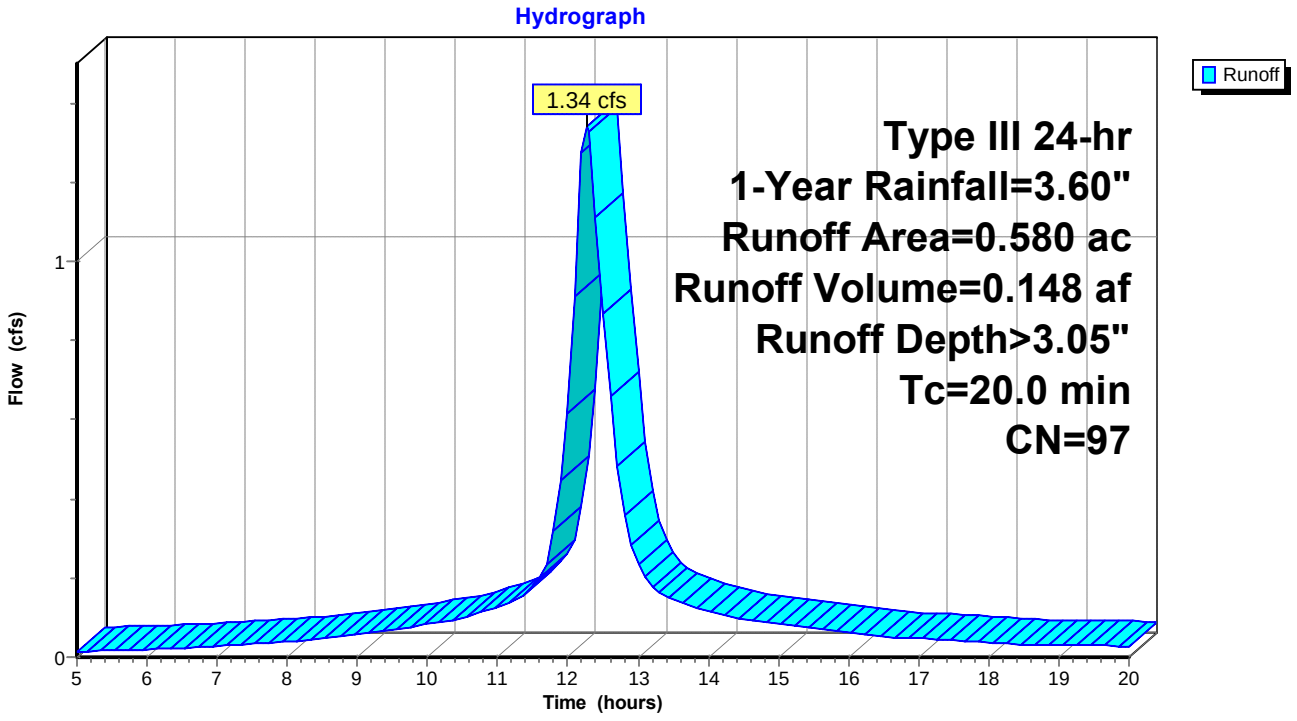
Runoff = 1.34 cfs @ 12.27 hrs, Volume= 0.148 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

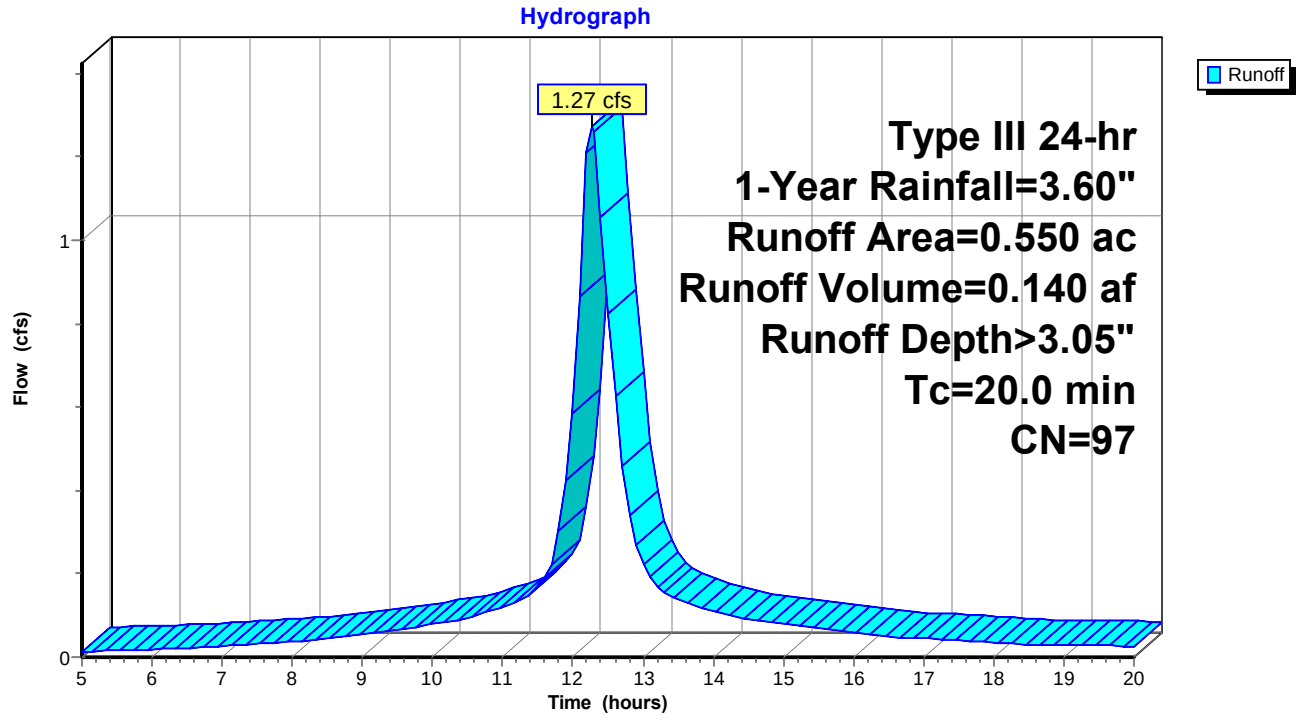
Runoff = 1.27 cfs @ 12.27 hrs, Volume= 0.140 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

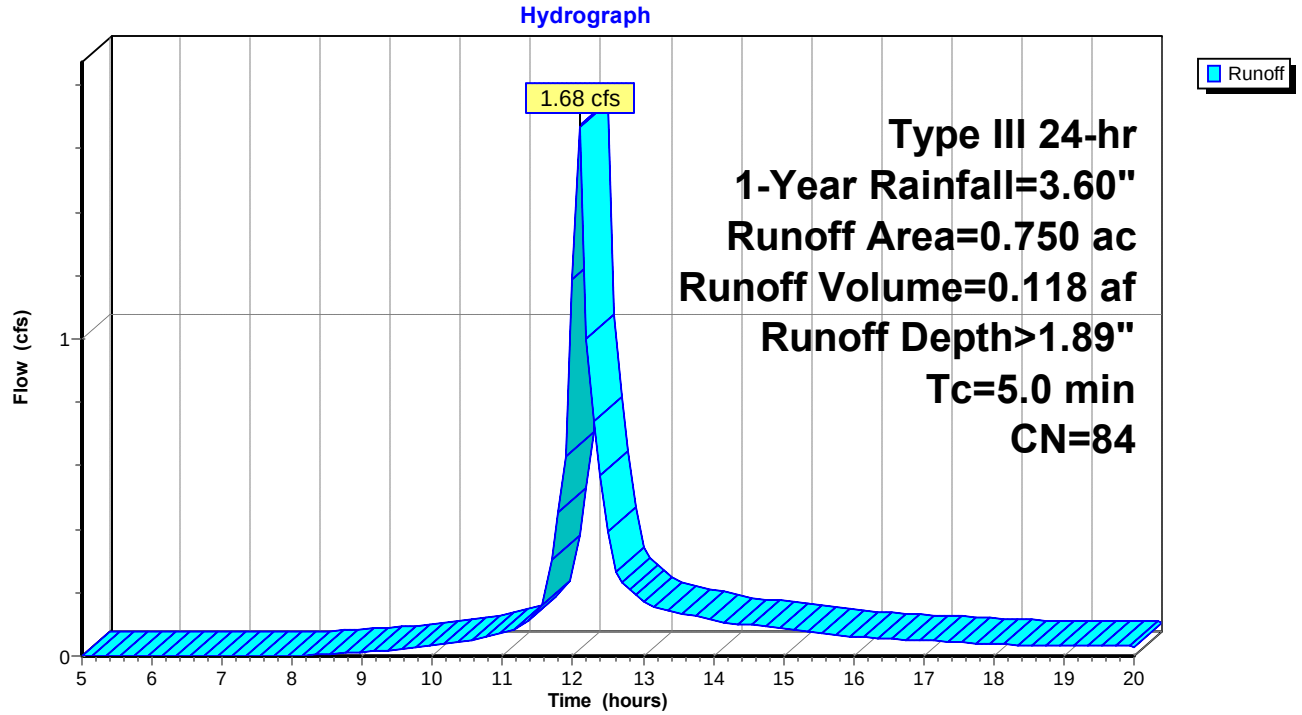
Runoff = 1.68 cfs @ 12.09 hrs, Volume= 0.118 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

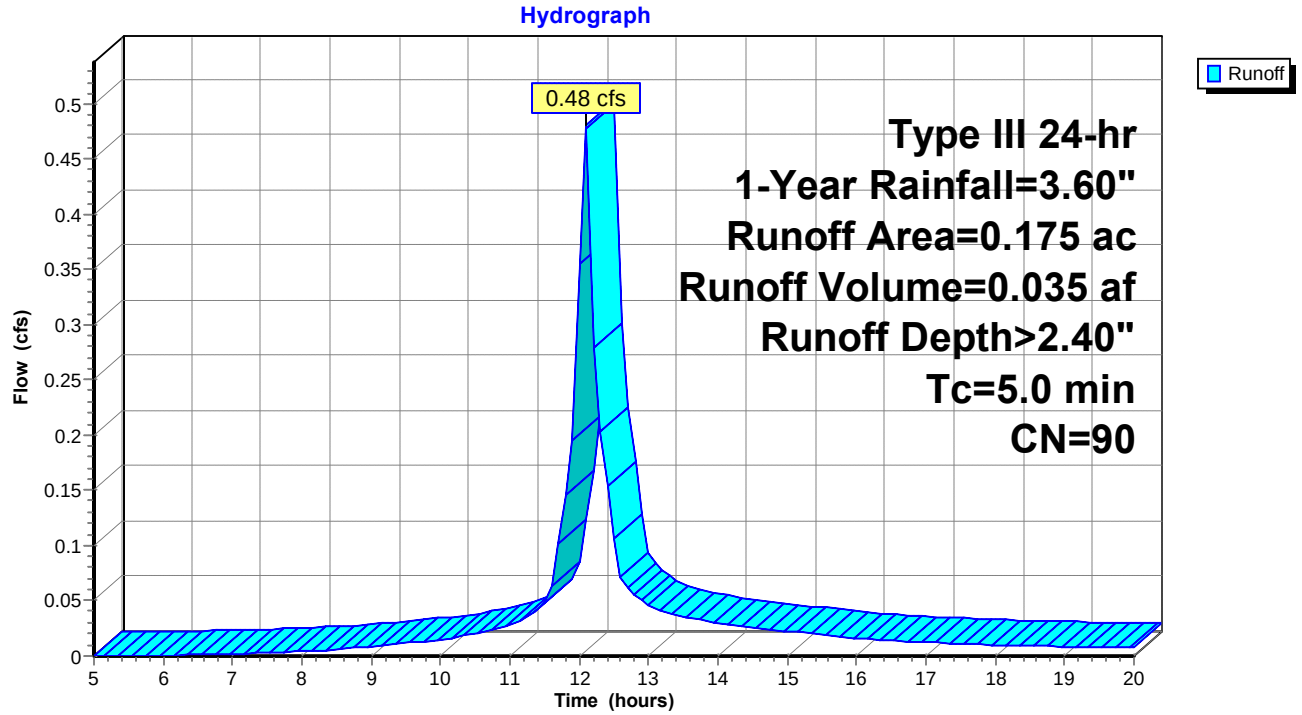
Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 2.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



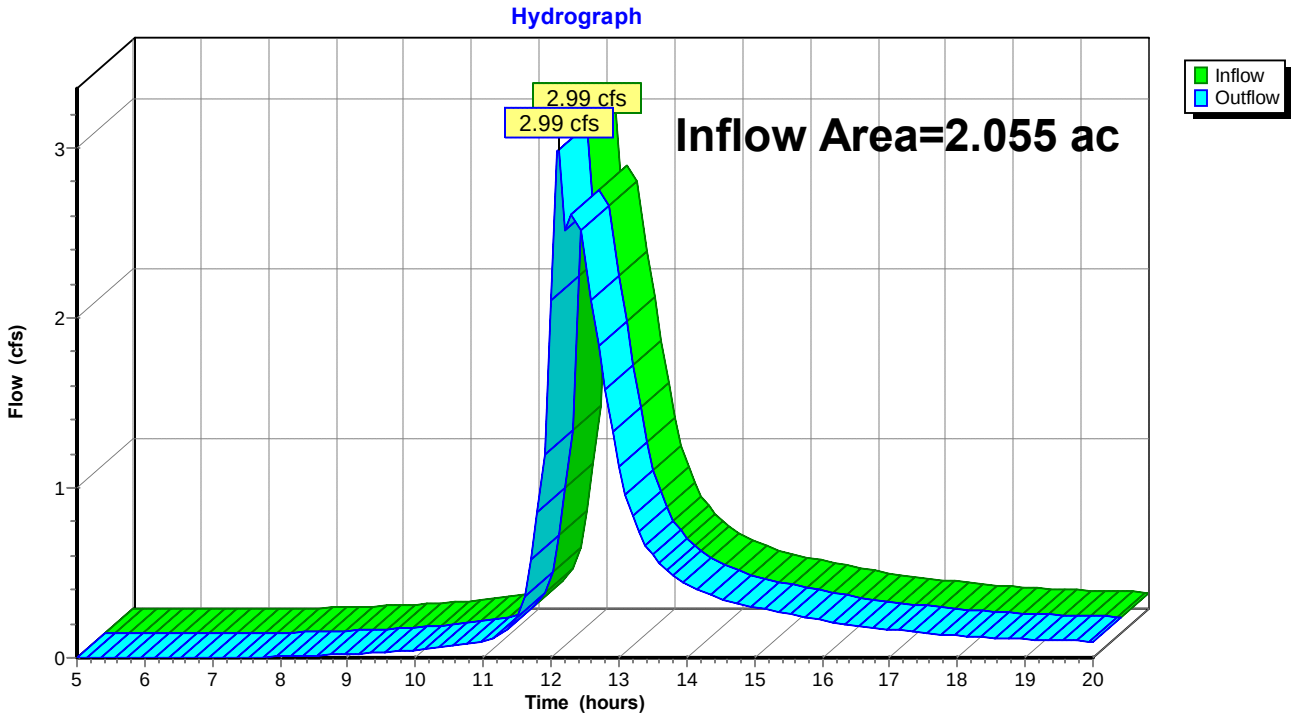
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 2.23" for 1-Year event
Inflow = 2.99 cfs @ 12.12 hrs, Volume= 0.381 af
Outflow = 2.99 cfs @ 12.12 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 3.05" for 1-Year event
Inflow = 2.61 cfs @ 12.27 hrs, Volume= 0.287 af
Outflow = 1.93 cfs @ 12.45 hrs, Volume= 0.228 af, Atten= 26%, Lag= 11.1 min
Primary = 1.93 cfs @ 12.45 hrs, Volume= 0.228 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 5.36' @ 12.45 hrs Surf.Area= 2,860 sf Storage= 4,561 cf

Plug-Flow detention time= 118.8 min calculated for 0.226 af (79% of inflow)
Center-of-Mass det. time= 65.9 min (818.6 - 752.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.91 cfs @ 12.45 hrs HW=5.35' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.91 cfs @ 3.36 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

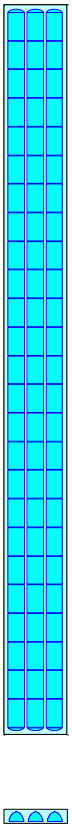
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

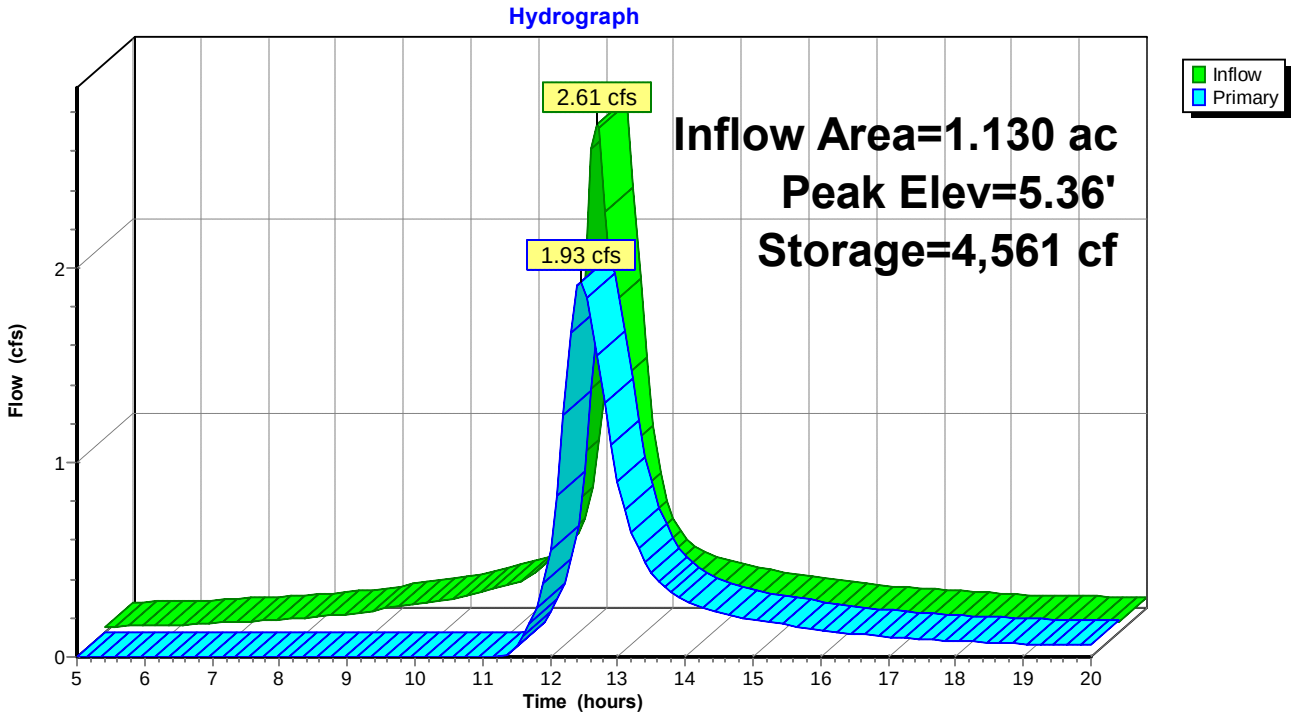
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>5.26"
Tc=20.0 min CN=97 Runoff=2.27 cfs 0.254 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>5.26"
Tc=20.0 min CN=97 Runoff=2.15 cfs 0.241 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>3.95"
Tc=5.0 min CN=84 Runoff=3.40 cfs 0.247 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>4.58"
Tc=5.0 min CN=90 Runoff=0.88 cfs 0.067 af

Reach 2R: Combine Inflow=5.88 cfs 0.748 af
Outflow=5.88 cfs 0.748 af

Pond 1P: Pond A Peak Elev=5.98' Storage=5,473 cf Inflow=4.42 cfs 0.495 af
Outflow=4.07 cfs 0.434 af

Total Runoff Area = 2.055 ac Runoff Volume = 0.809 af Average Runoff Depth = 4.72"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

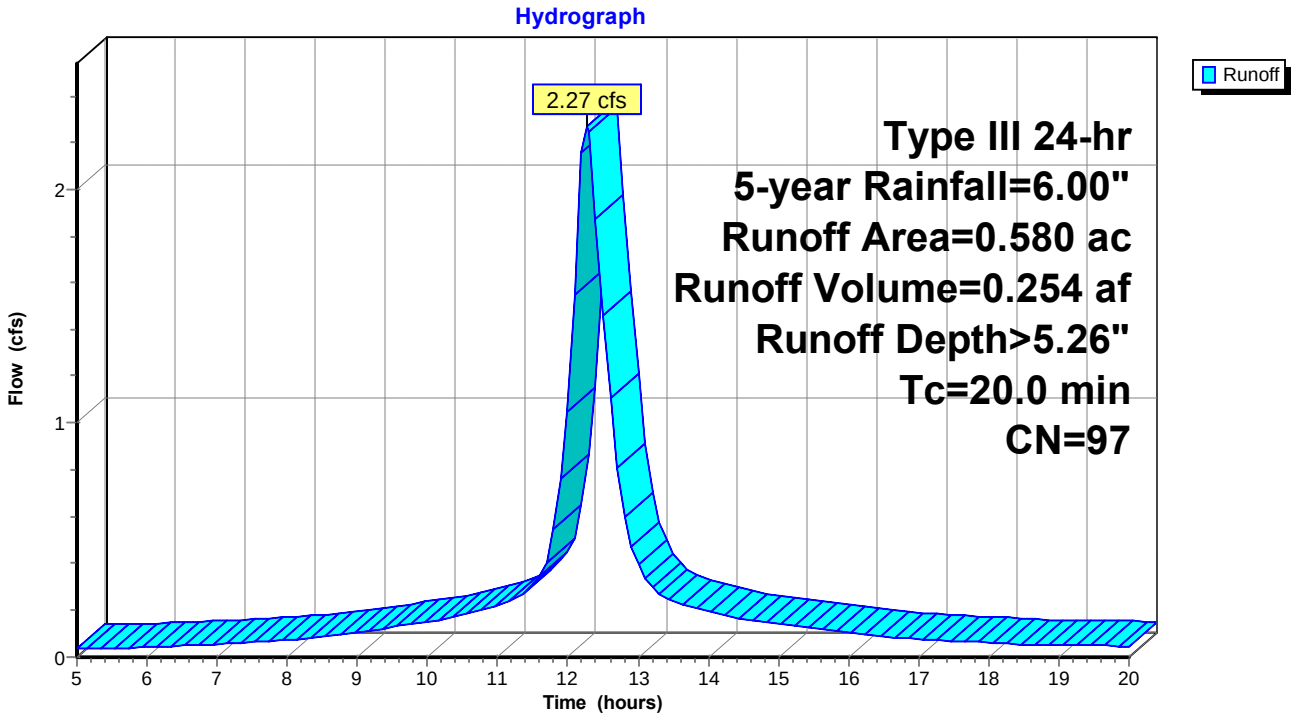
Runoff = 2.27 cfs @ 12.27 hrs, Volume= 0.254 af, Depth> 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 5-year Rainfall=6.00"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

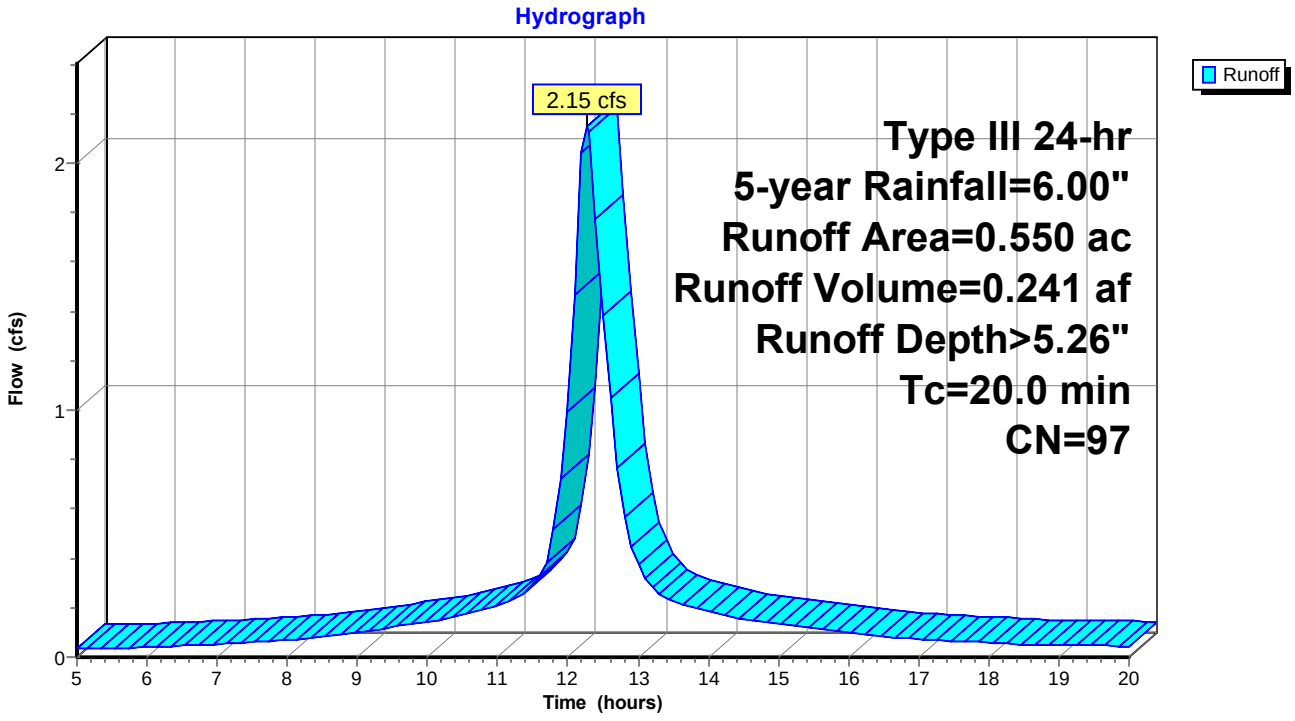
Runoff = 2.15 cfs @ 12.27 hrs, Volume= 0.241 af, Depth> 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 5-year Rainfall=6.00"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

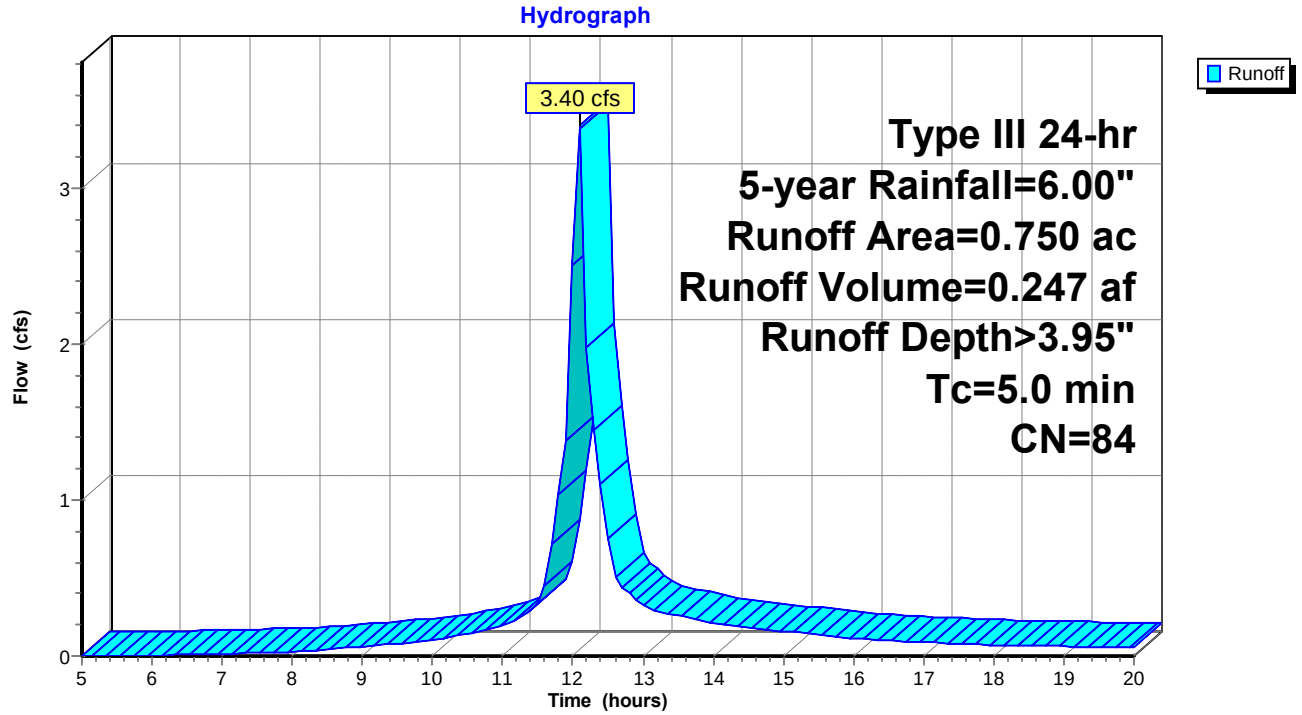
Runoff = 3.40 cfs @ 12.09 hrs, Volume= 0.247 af, Depth> 3.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 5-year Rainfall=6.00"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

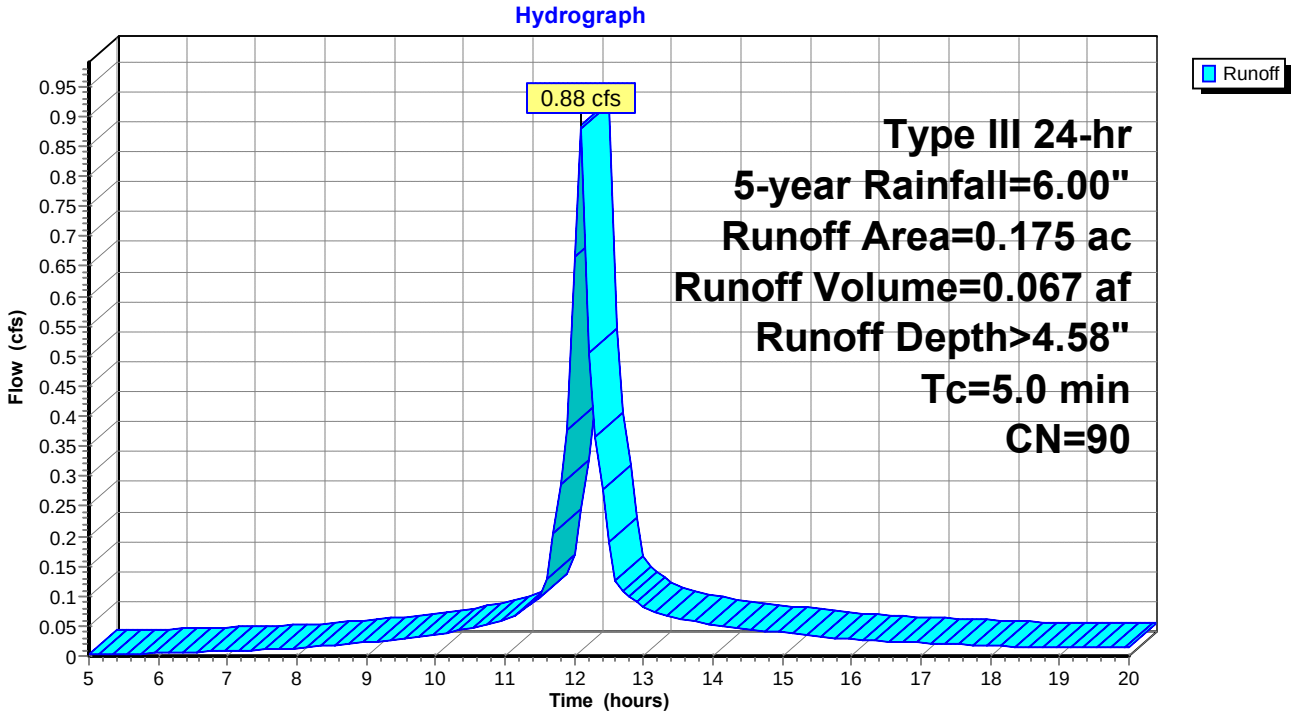
Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.067 af, Depth> 4.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 5-year Rainfall=6.00"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



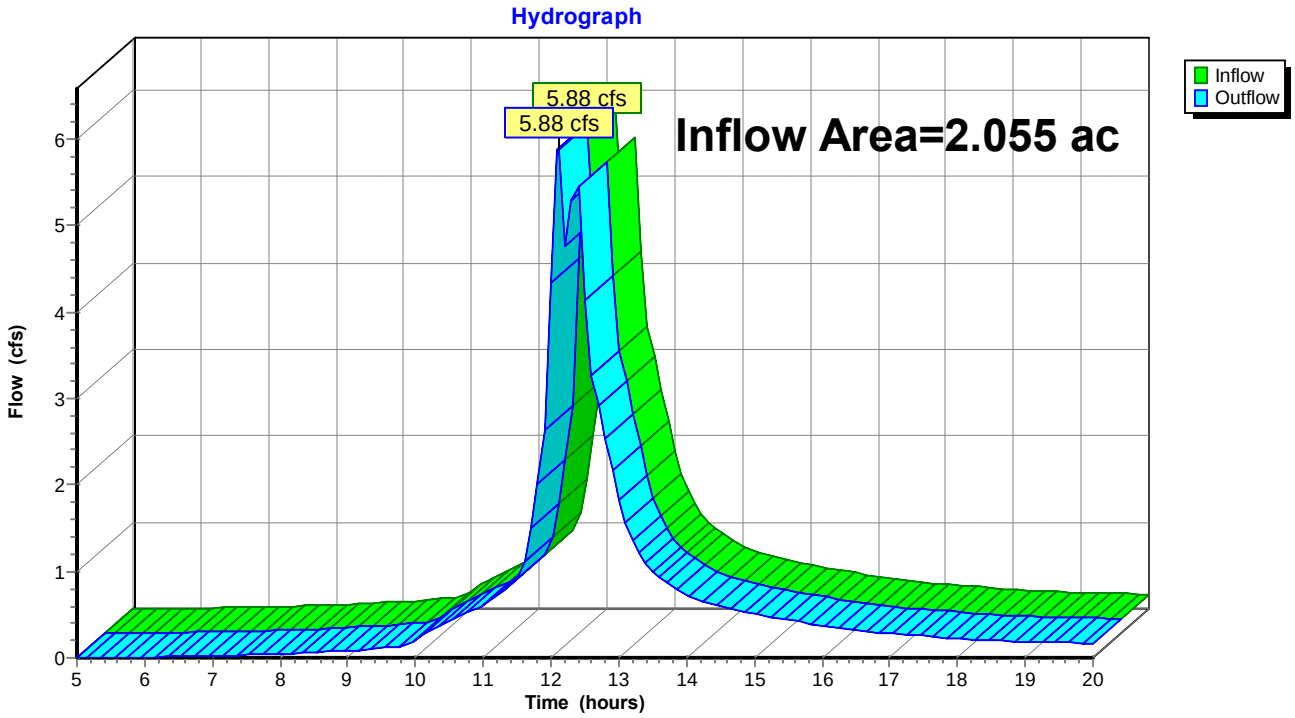
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 4.37" for 5-year event
Inflow = 5.88 cfs @ 12.11 hrs, Volume= 0.748 af
Outflow = 5.88 cfs @ 12.11 hrs, Volume= 0.748 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 5.26" for 5-year event
Inflow = 4.42 cfs @ 12.27 hrs, Volume= 0.495 af
Outflow = 4.07 cfs @ 12.39 hrs, Volume= 0.434 af, Atten= 8%, Lag= 7.3 min
Primary = 4.07 cfs @ 12.39 hrs, Volume= 0.434 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 5.98' @ 12.39 hrs Surf.Area= 2,860 sf Storage= 5,473 cf

Plug-Flow detention time= 89.7 min calculated for 0.431 af (87% of inflow)
Center-of-Mass det. time= 51.6 min (798.7 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.01 cfs @ 12.39 hrs HW=5.97' TW=0.00' (Dynamic Tailwater)
1=Sharp-Crested Rectangular Weir (Weir Controls 1.07 cfs @ 1.53 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 2.93 cfs @ 4.22 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

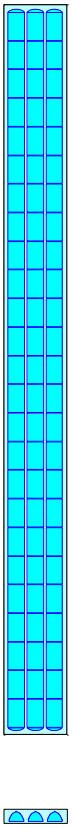
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

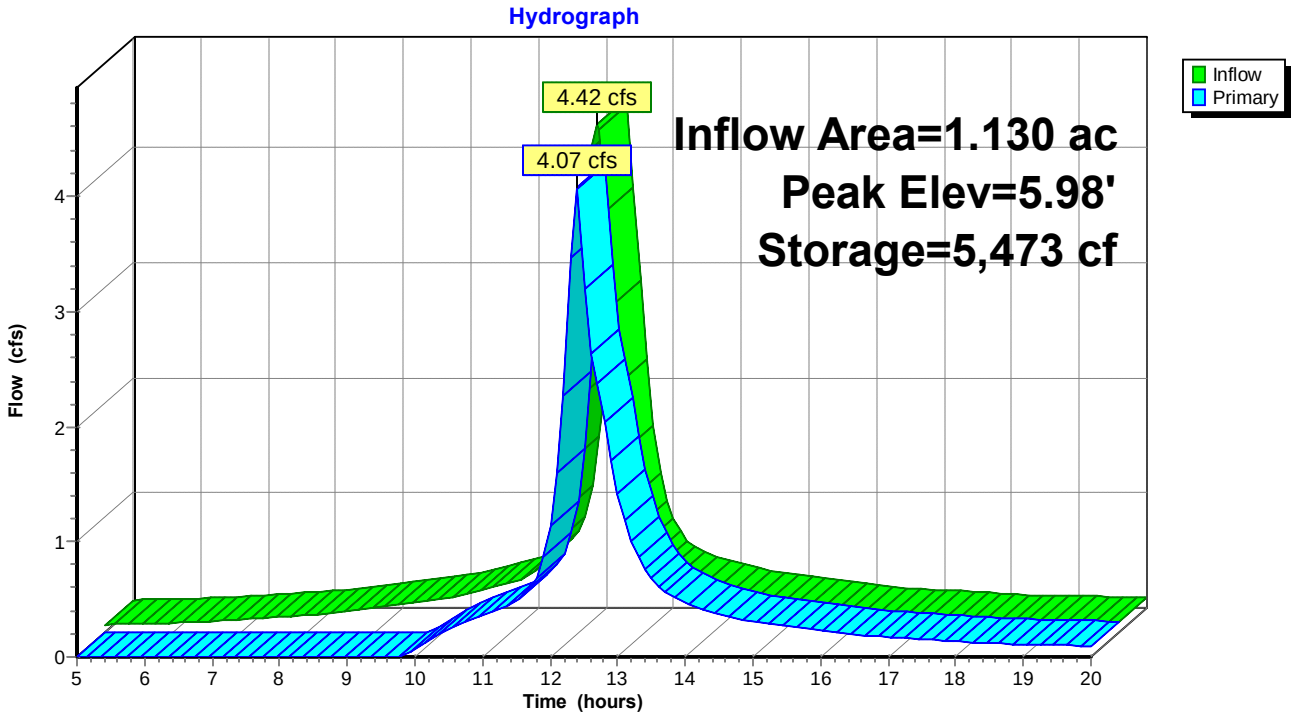
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>5.91"
Tc=20.0 min CN=97 Runoff=2.54 cfs 0.286 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>5.91"
Tc=20.0 min CN=97 Runoff=2.41 cfs 0.271 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>4.60"
Tc=5.0 min CN=84 Runoff=3.93 cfs 0.287 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>5.25"
Tc=5.0 min CN=90 Runoff=1.00 cfs 0.077 af

Reach 2R: Combine Inflow=6.79 cfs 0.859 af
Outflow=6.79 cfs 0.859 af

Pond 1P: Pond A Peak Elev=6.08' Storage=5,592 cf Inflow=4.96 cfs 0.557 af
Outflow=4.91 cfs 0.495 af

Total Runoff Area = 2.055 ac Runoff Volume = 0.921 af Average Runoff Depth = 5.38"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

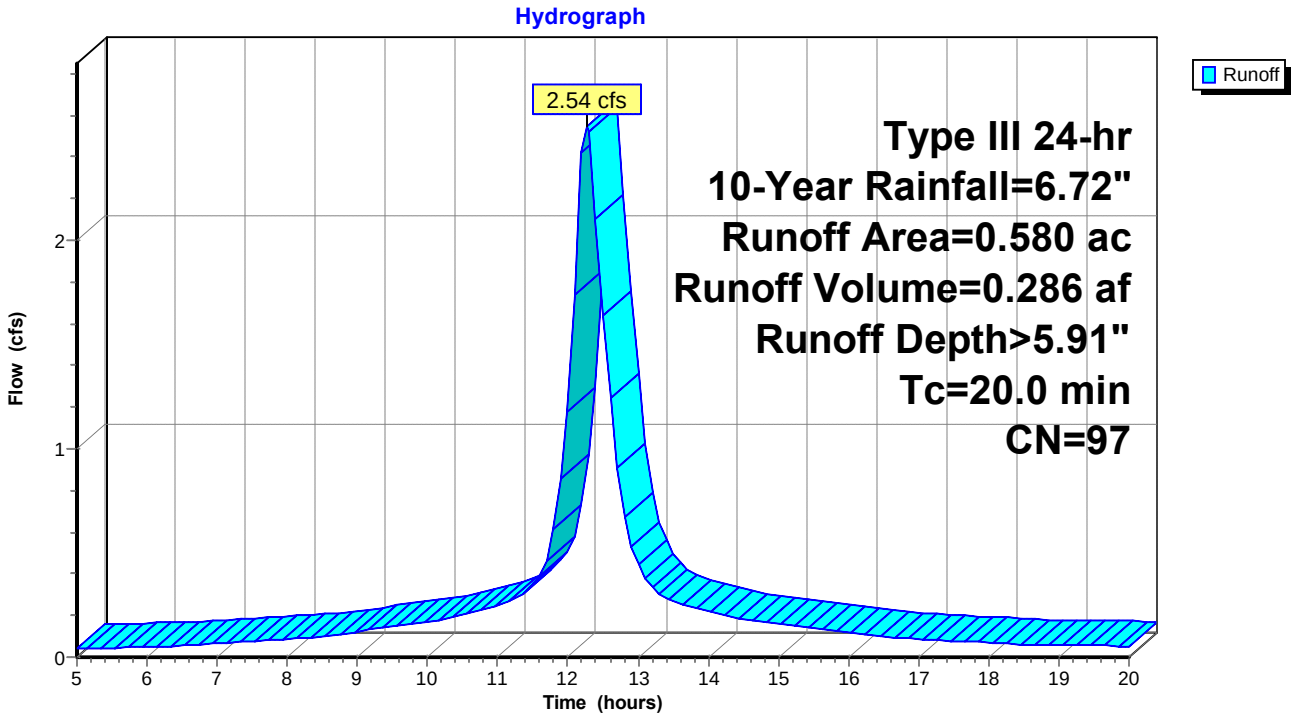
Runoff = 2.54 cfs @ 12.27 hrs, Volume= 0.286 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

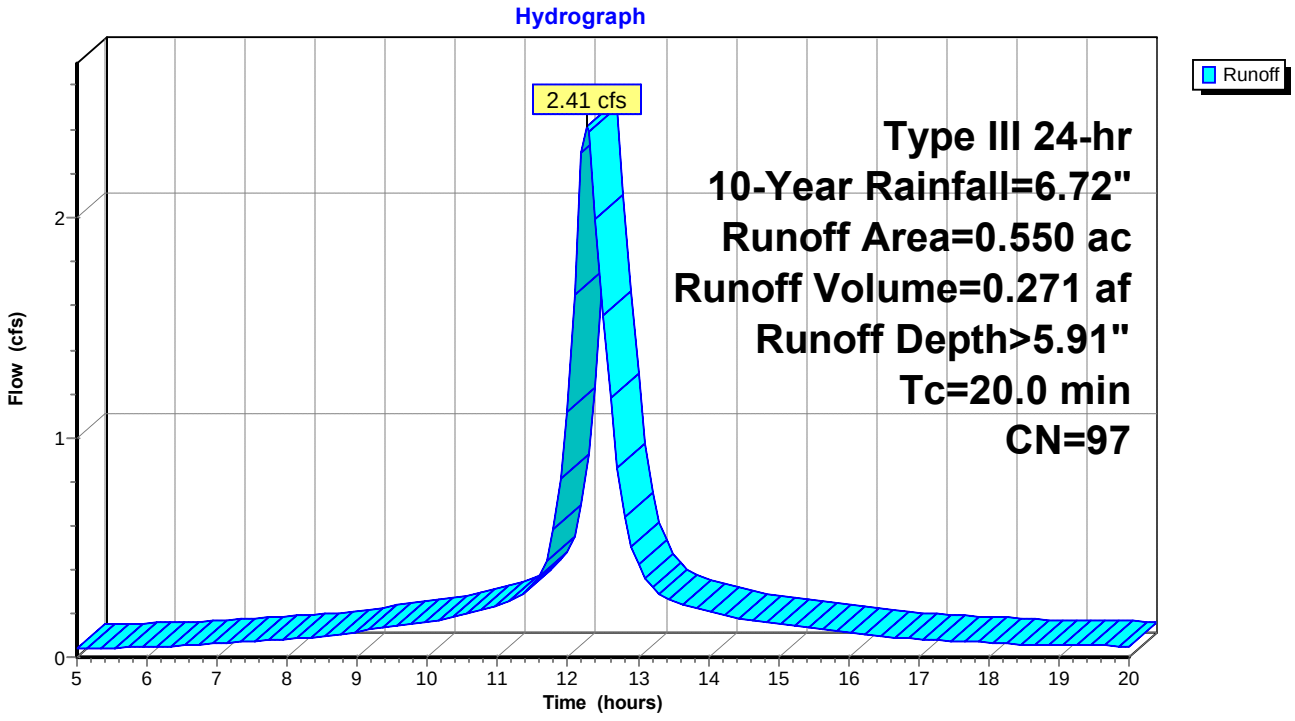
Runoff = 2.41 cfs @ 12.27 hrs, Volume= 0.271 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

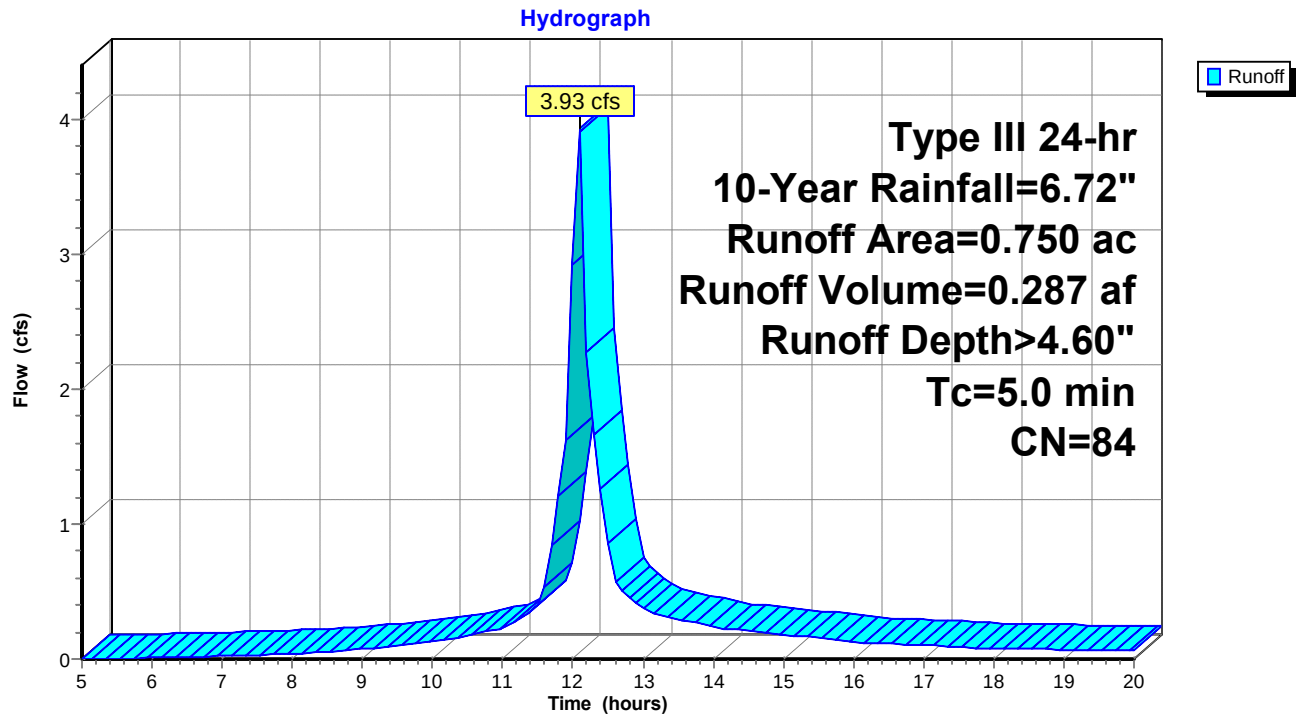
Runoff = 3.93 cfs @ 12.09 hrs, Volume= 0.287 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

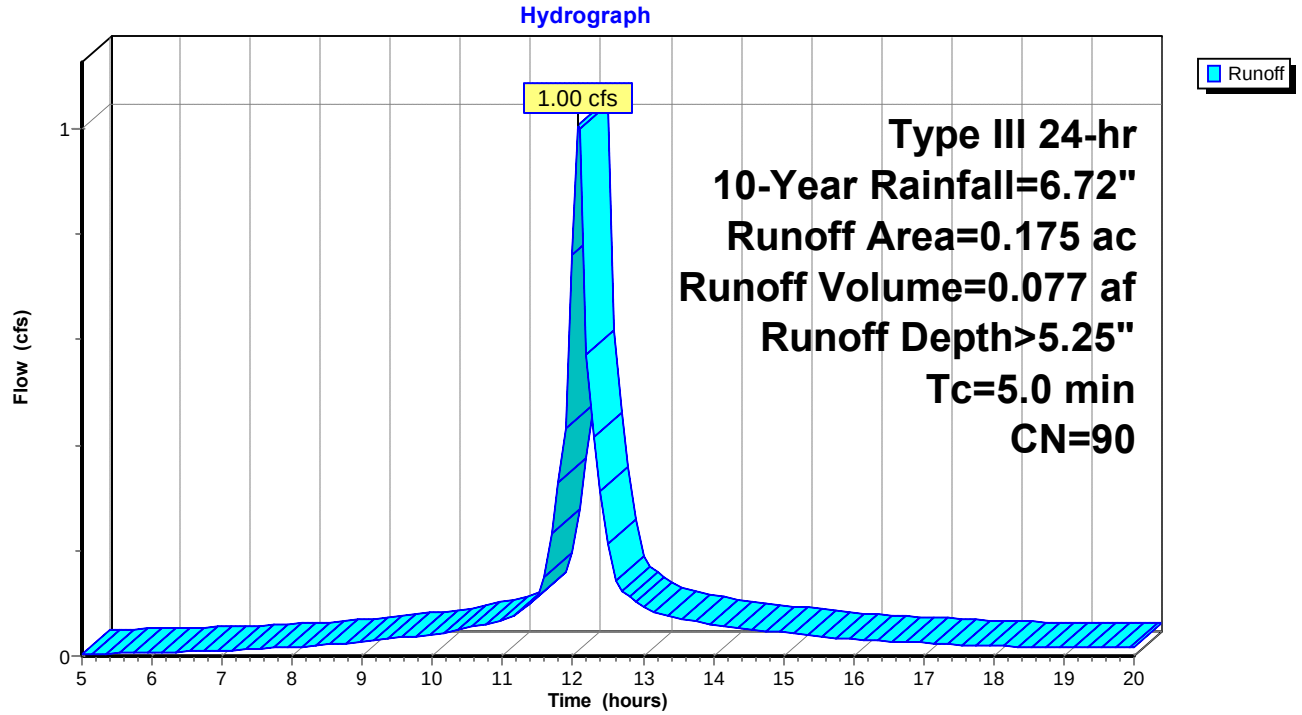
Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.077 af, Depth> 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



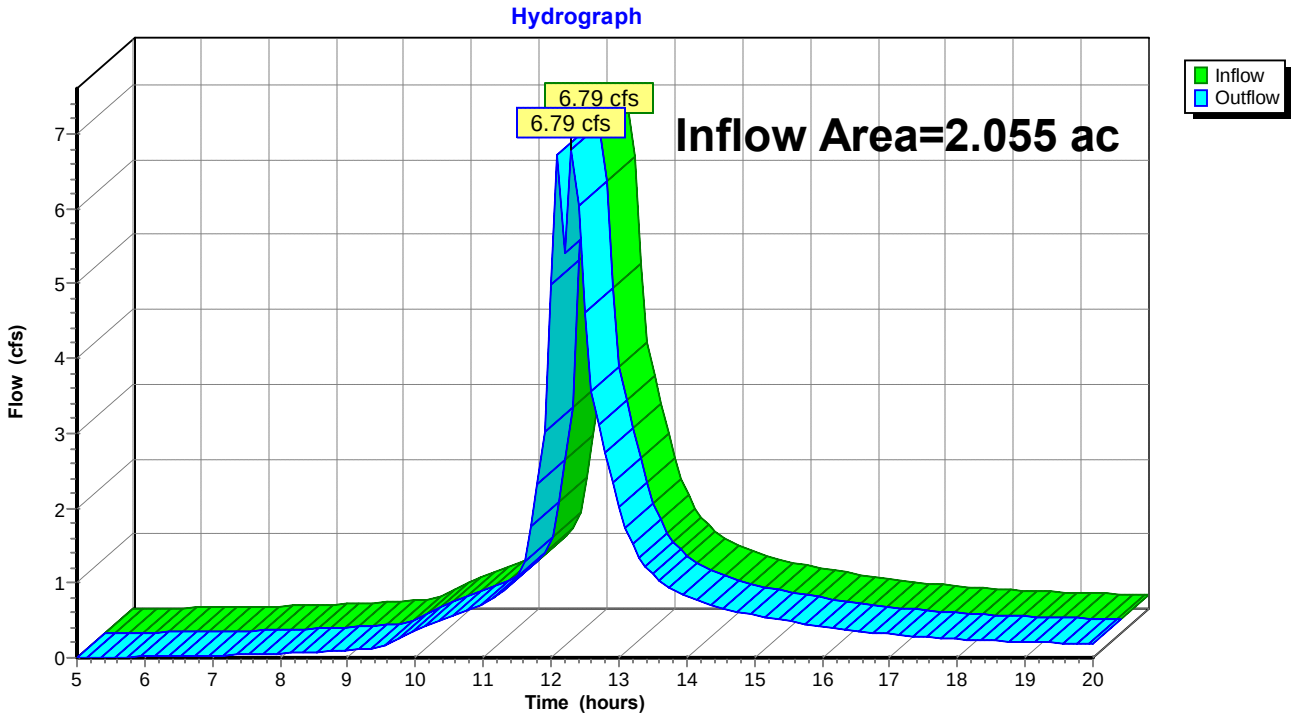
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 5.02" for 10-Year event
Inflow = 6.79 cfs @ 12.30 hrs, Volume= 0.859 af
Outflow = 6.79 cfs @ 12.30 hrs, Volume= 0.859 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 5.91" for 10-Year event
Inflow = 4.96 cfs @ 12.27 hrs, Volume= 0.557 af
Outflow = 4.91 cfs @ 12.34 hrs, Volume= 0.495 af, Atten= 1%, Lag= 4.2 min
Primary = 4.91 cfs @ 12.34 hrs, Volume= 0.495 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 6.08' @ 12.34 hrs Surf.Area= 2,860 sf Storage= 5,592 cf

Plug-Flow detention time= 84.9 min calculated for 0.495 af (89% of inflow)
Center-of-Mass det. time= 48.3 min (794.6 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.62 cfs @ 12.34 hrs HW=6.04' TW=0.00' (Dynamic Tailwater)
1=Sharp-Crested Rectangular Weir (Weir Controls 1.60 cfs @ 1.75 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 3.01 cfs @ 4.31 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

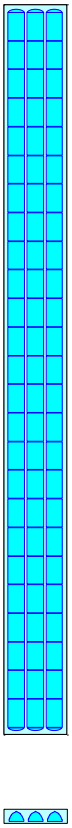
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

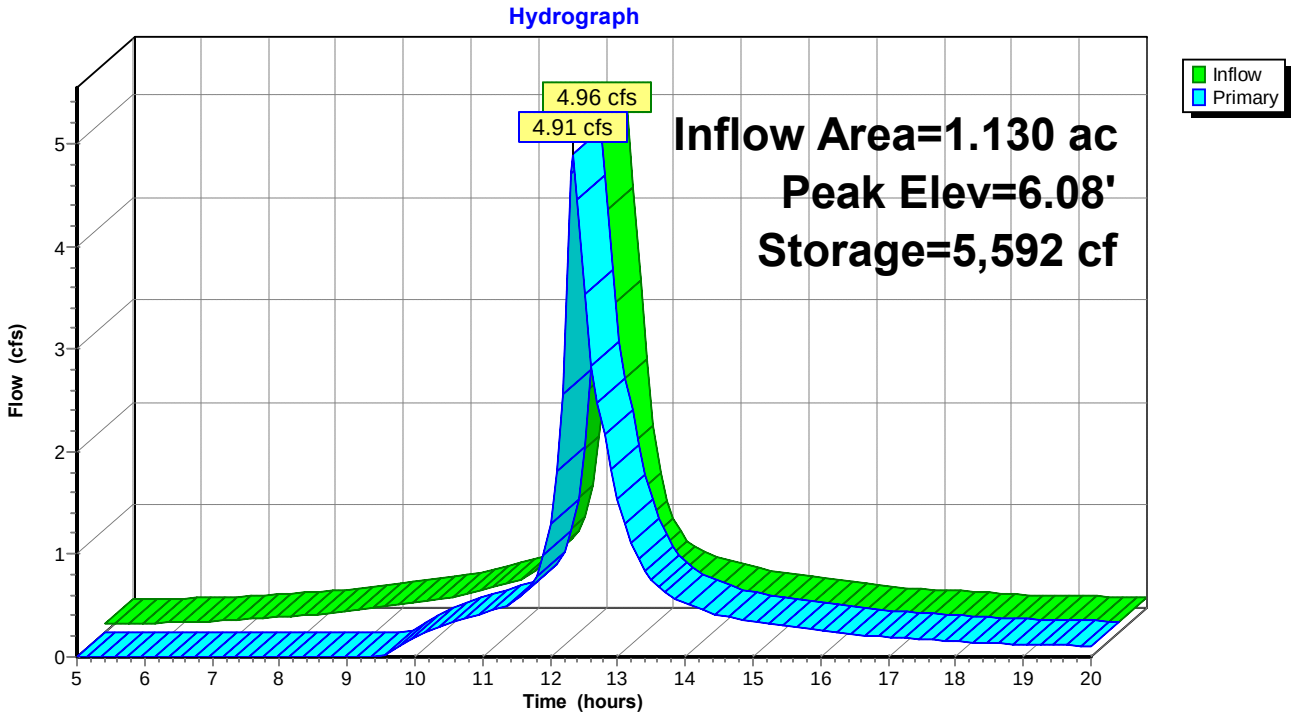
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>7.01"
Tc=20.0 min CN=97 Runoff=3.00 cfs 0.339 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>7.01"
Tc=20.0 min CN=97 Runoff=2.85 cfs 0.321 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>5.69"
Tc=5.0 min CN=84 Runoff=4.79 cfs 0.356 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>6.35"
Tc=5.0 min CN=90 Runoff=1.20 cfs 0.093 af

Reach 2R: Combine Inflow=8.57 cfs 1.046 af
Outflow=8.57 cfs 1.046 af

Pond 1P: Pond A Peak Elev=6.19' Storage=5,715 cf Inflow=5.85 cfs 0.660 af
Outflow=6.14 cfs 0.598 af

Total Runoff Area = 2.055 ac Runoff Volume = 1.108 af Average Runoff Depth = 6.47"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

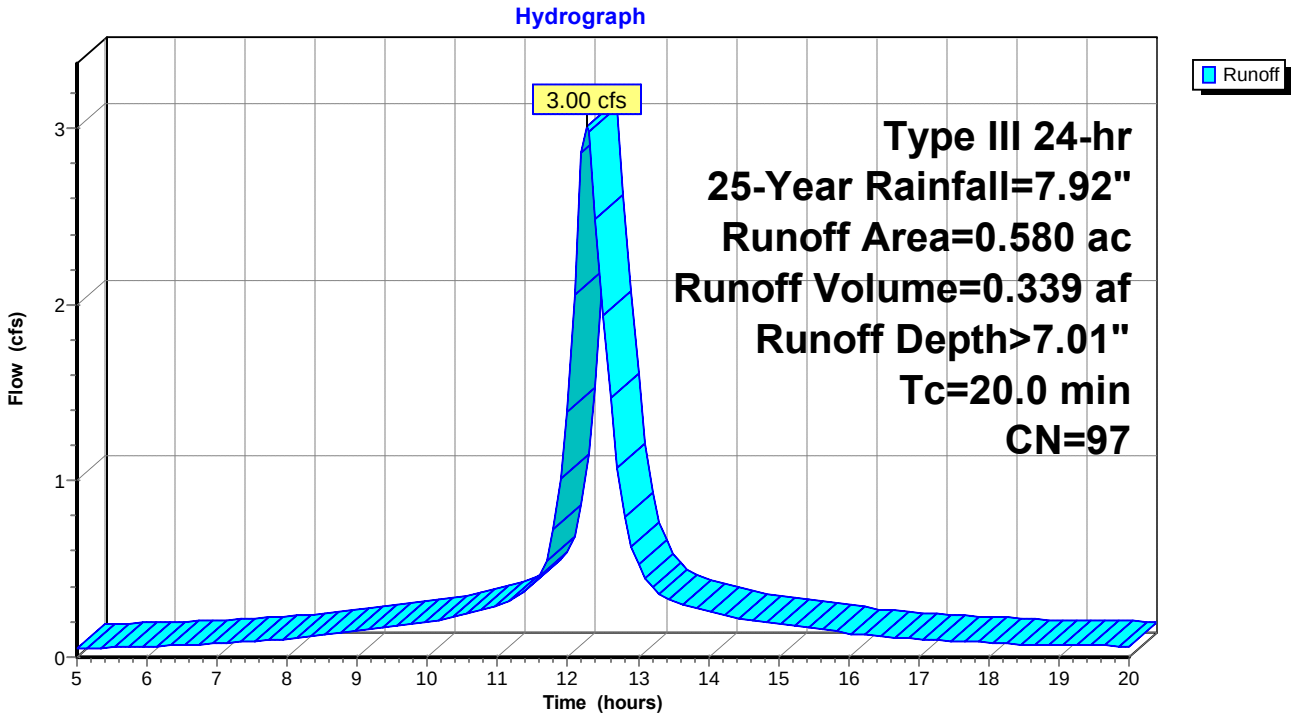
Runoff = 3.00 cfs @ 12.27 hrs, Volume= 0.339 af, Depth> 7.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 25-Year Rainfall=7.92"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

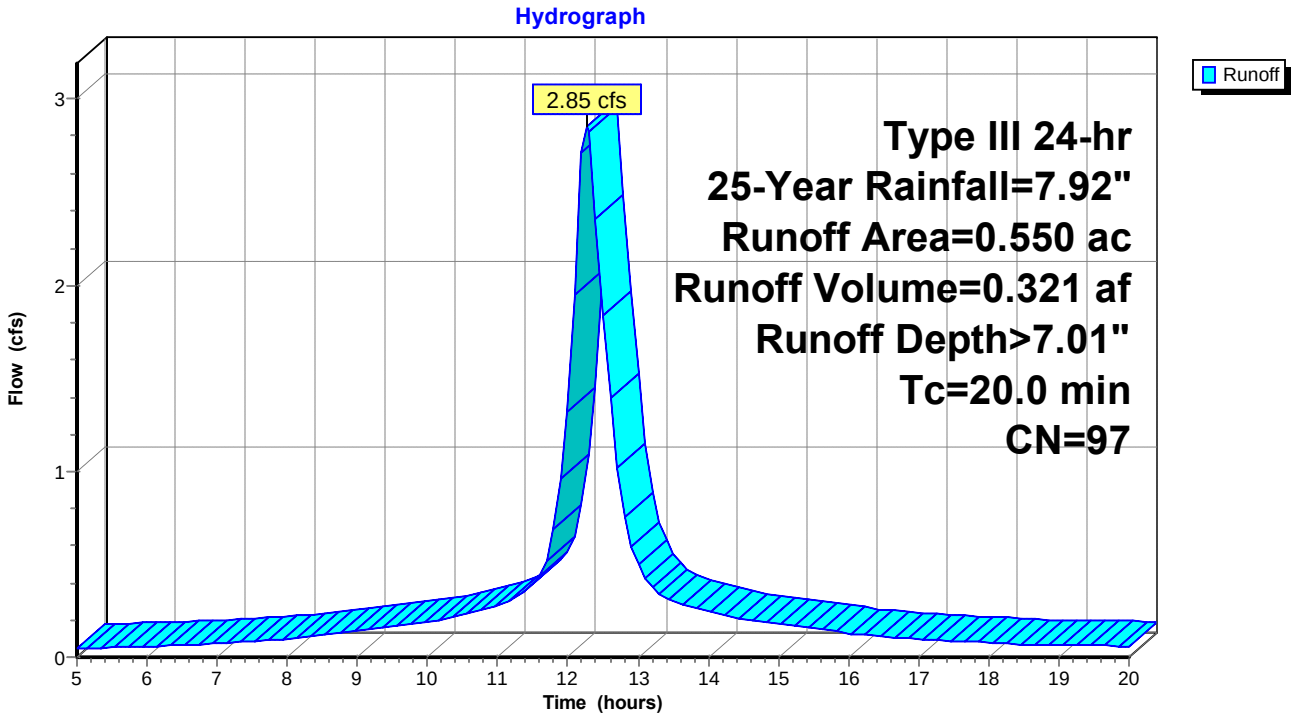
Runoff = 2.85 cfs @ 12.27 hrs, Volume= 0.321 af, Depth> 7.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 25-Year Rainfall=7.92"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

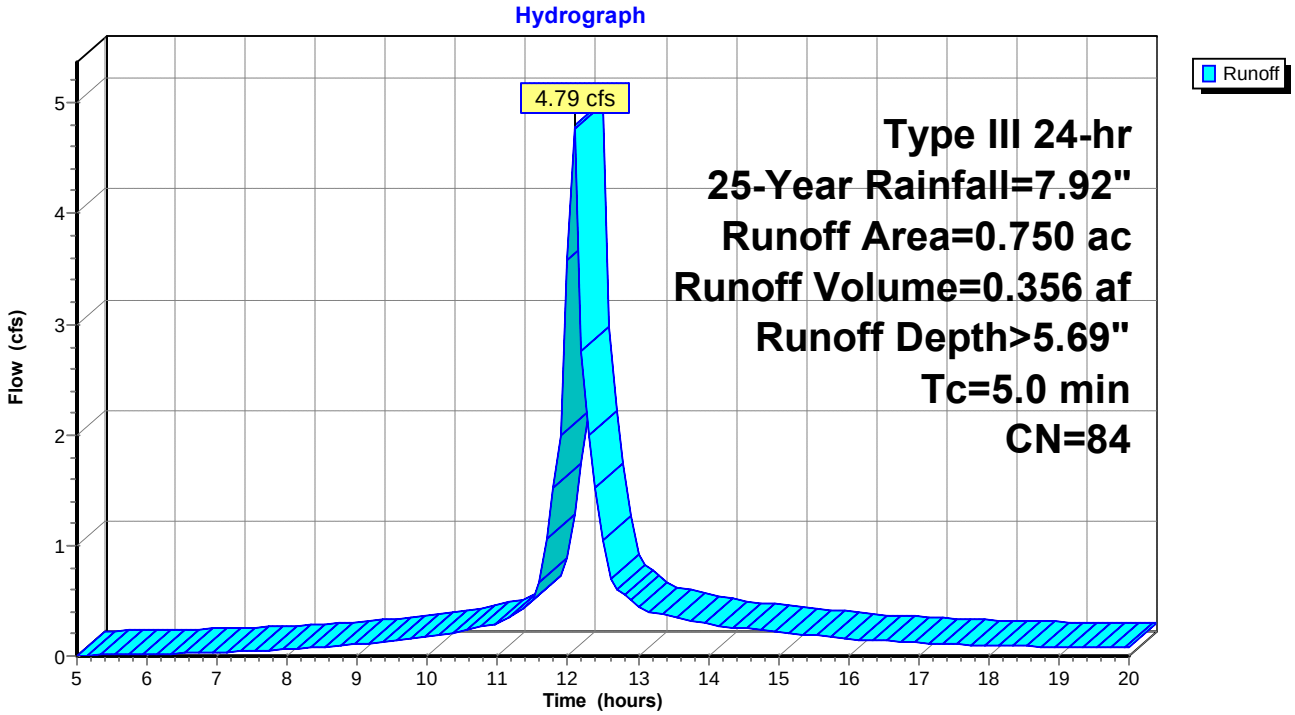
Runoff = 4.79 cfs @ 12.09 hrs, Volume= 0.356 af, Depth> 5.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 25-Year Rainfall=7.92"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

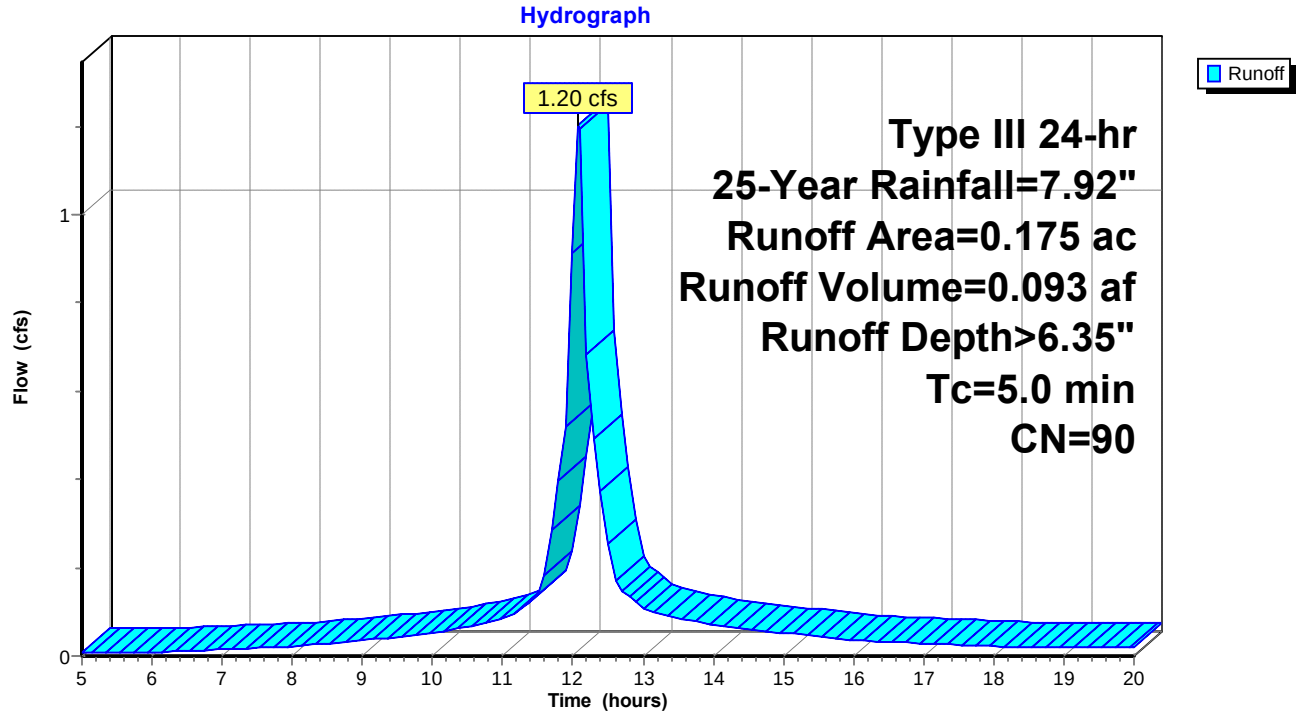
Runoff = 1.20 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 6.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 25-Year Rainfall=7.92"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



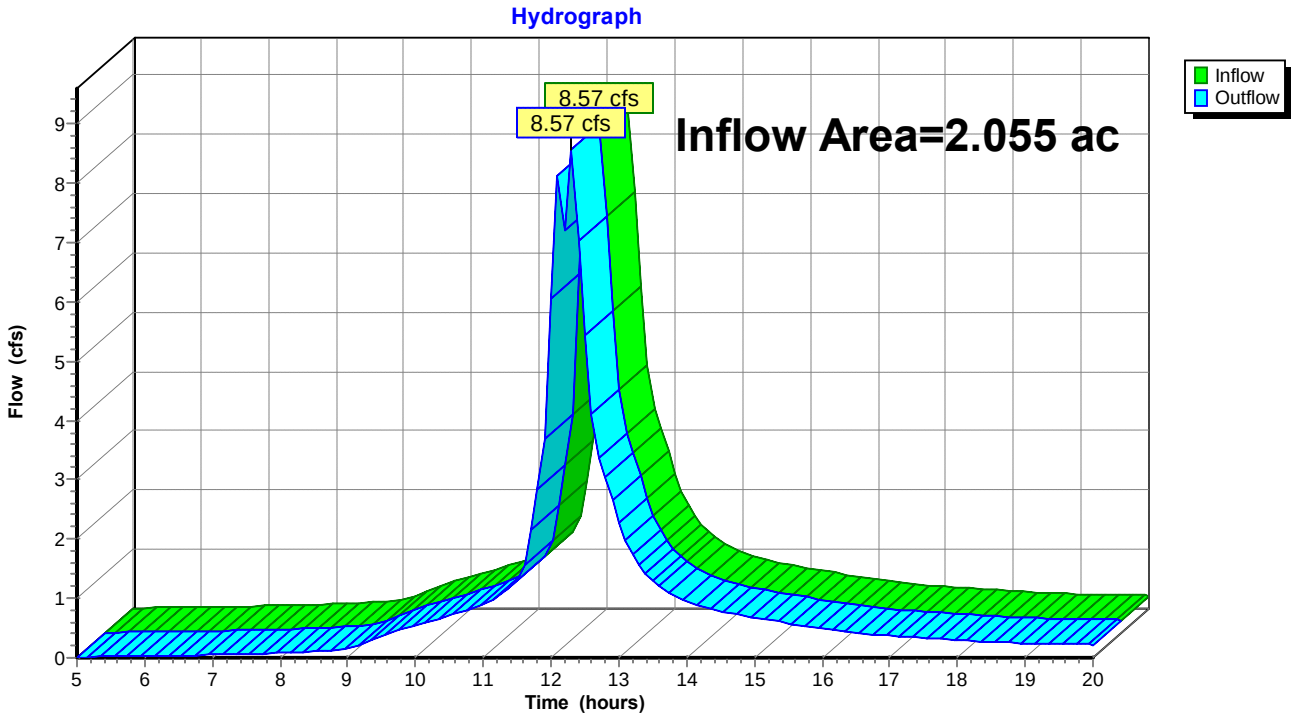
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 6.11" for 25-Year event
Inflow = 8.57 cfs @ 12.30 hrs, Volume= 1.046 af
Outflow = 8.57 cfs @ 12.30 hrs, Volume= 1.046 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 7.01" for 25-Year event
Inflow = 5.85 cfs @ 12.27 hrs, Volume= 0.660 af
Outflow = 6.14 cfs @ 12.32 hrs, Volume= 0.598 af, Atten= 0%, Lag= 3.1 min
Primary = 6.14 cfs @ 12.32 hrs, Volume= 0.598 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 6.19' @ 12.32 hrs Surf.Area= 2,860 sf Storage= 5,715 cf

Plug-Flow detention time= 76.5 min calculated for 0.597 af (91% of inflow)
Center-of-Mass det. time= 43.8 min (789.0 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.86 cfs @ 12.32 hrs HW=6.16' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 2.73 cfs @ 2.10 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.14 cfs @ 4.46 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

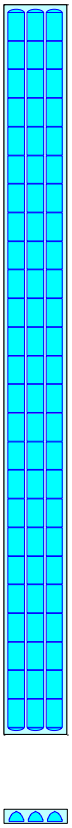
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

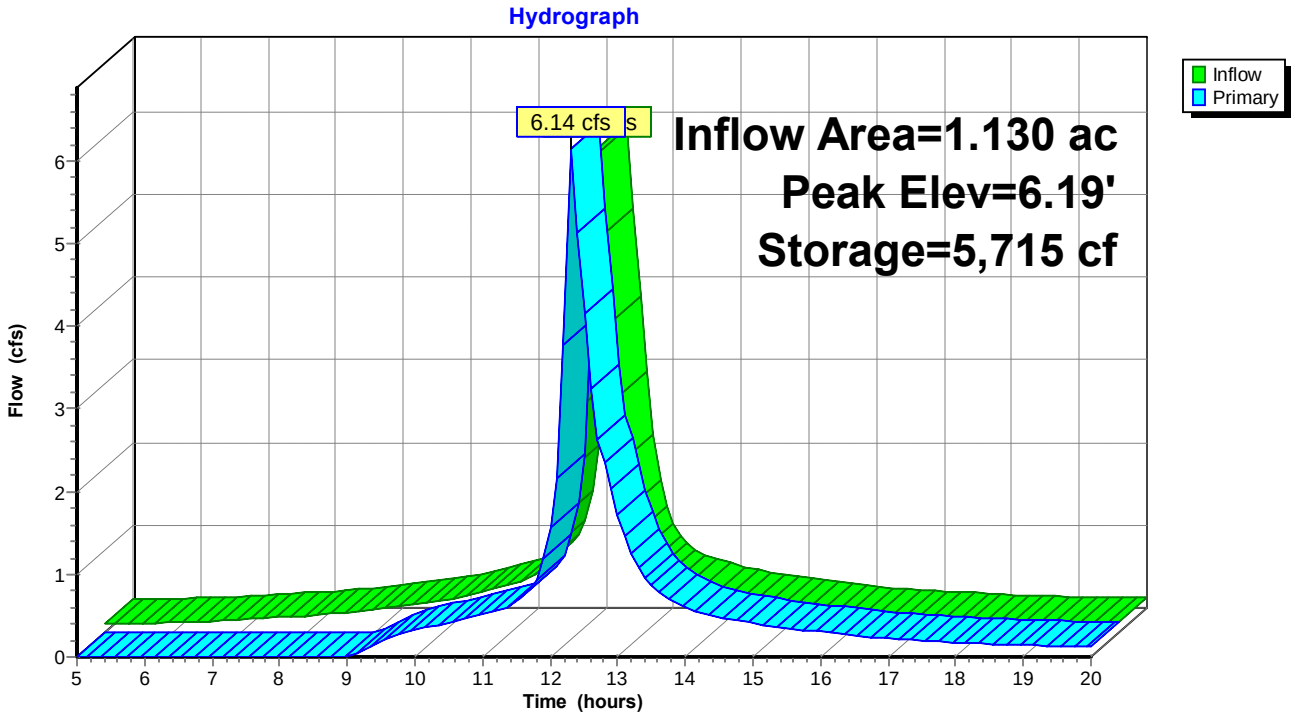
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>7.88"
Tc=20.0 min CN=97 Runoff=3.37 cfs 0.381 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>7.88"
Tc=20.0 min CN=97 Runoff=3.20 cfs 0.361 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>6.57"
Tc=5.0 min CN=84 Runoff=5.49 cfs 0.410 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>7.24"
Tc=5.0 min CN=90 Runoff=1.36 cfs 0.106 af

Reach 2R: Combine Inflow=9.65 cfs 1.196 af
Outflow=9.65 cfs 1.196 af

Pond 1P: Pond A Peak Elev=6.23' Storage=5,767 cf Inflow=6.57 cfs 0.742 af
Outflow=6.76 cfs 0.680 af

Total Runoff Area = 2.055 ac Runoff Volume = 1.258 af Average Runoff Depth = 7.35"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

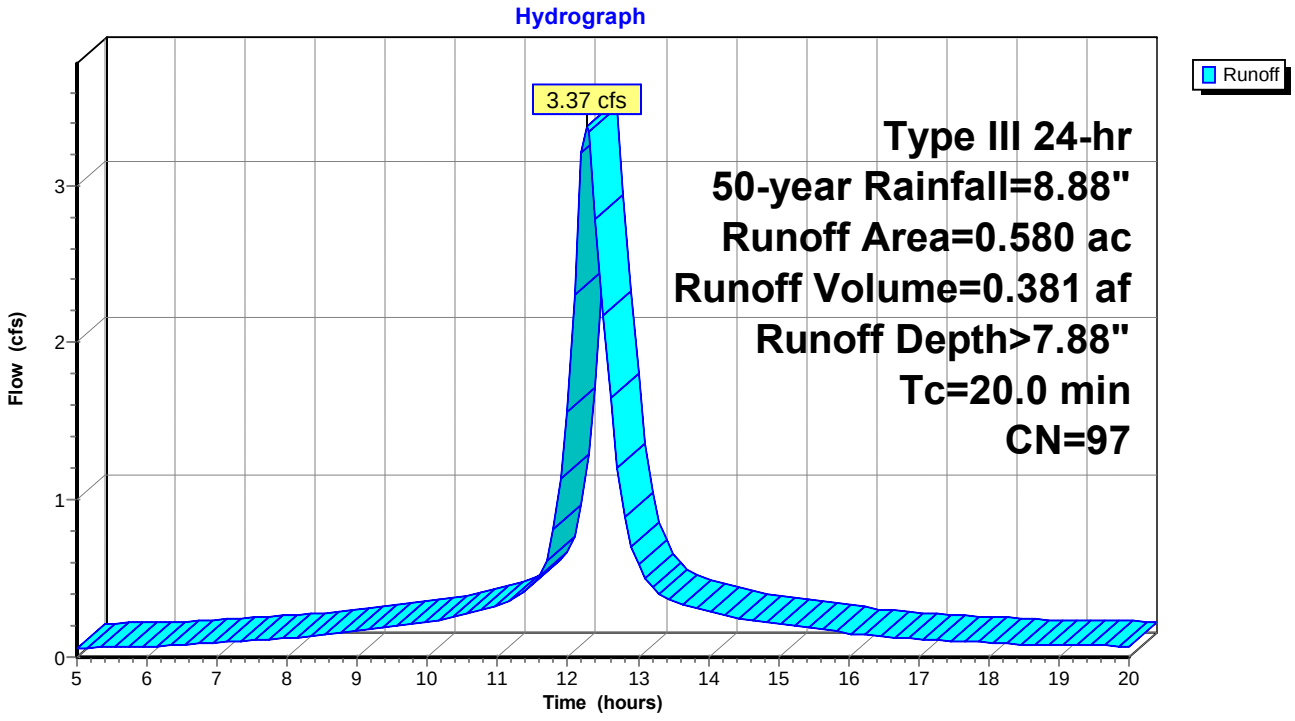
Runoff = 3.37 cfs @ 12.27 hrs, Volume= 0.381 af, Depth> 7.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

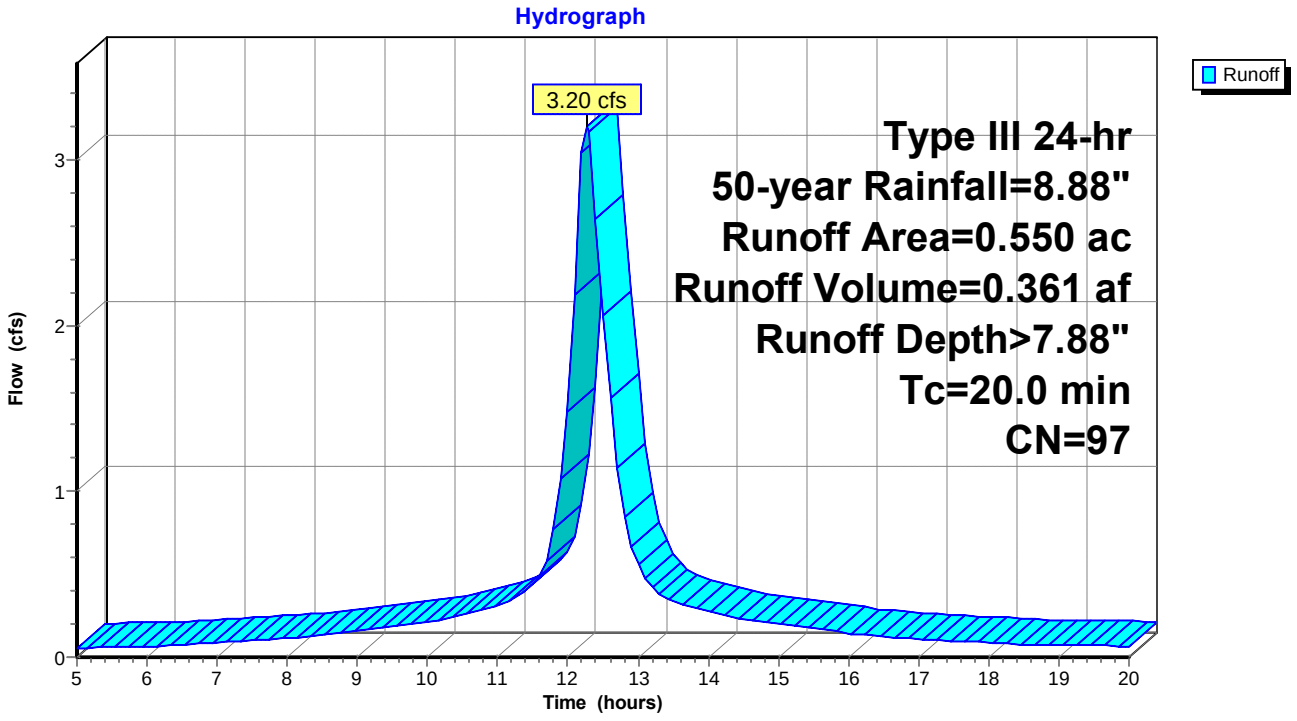
Runoff = 3.20 cfs @ 12.27 hrs, Volume= 0.361 af, Depth> 7.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

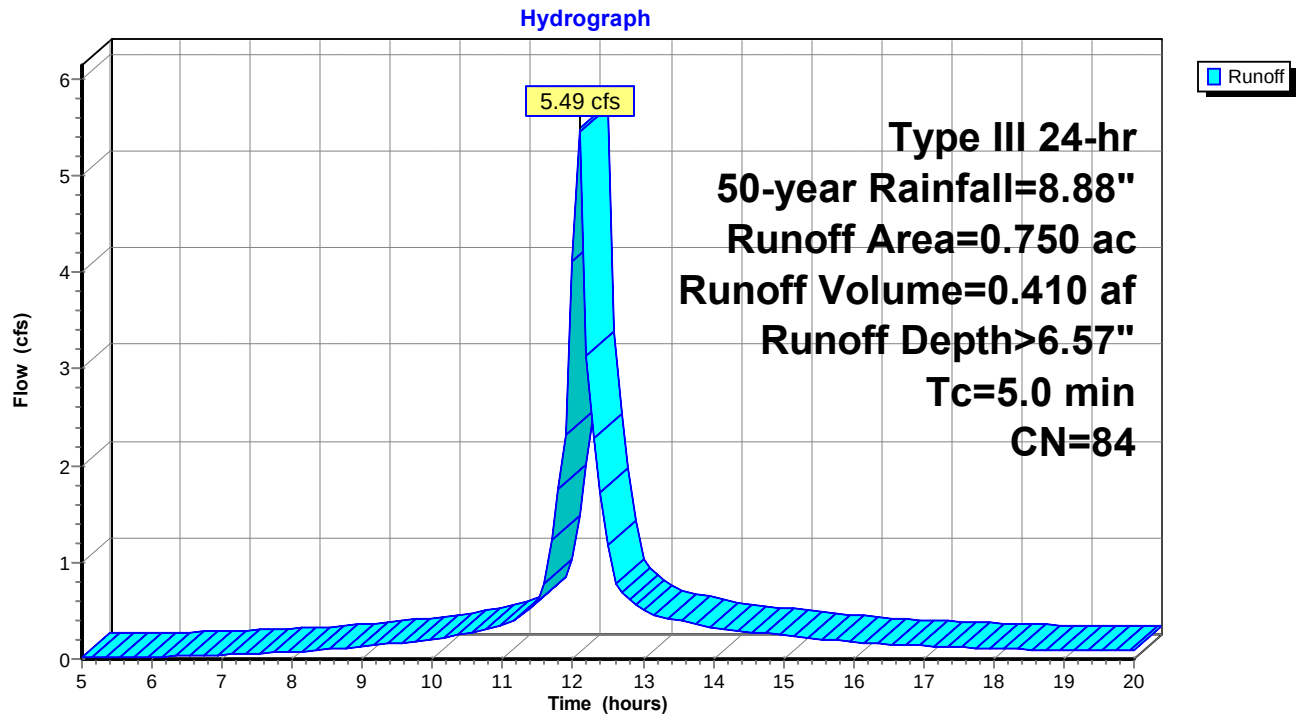
Runoff = 5.49 cfs @ 12.09 hrs, Volume= 0.410 af, Depth> 6.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

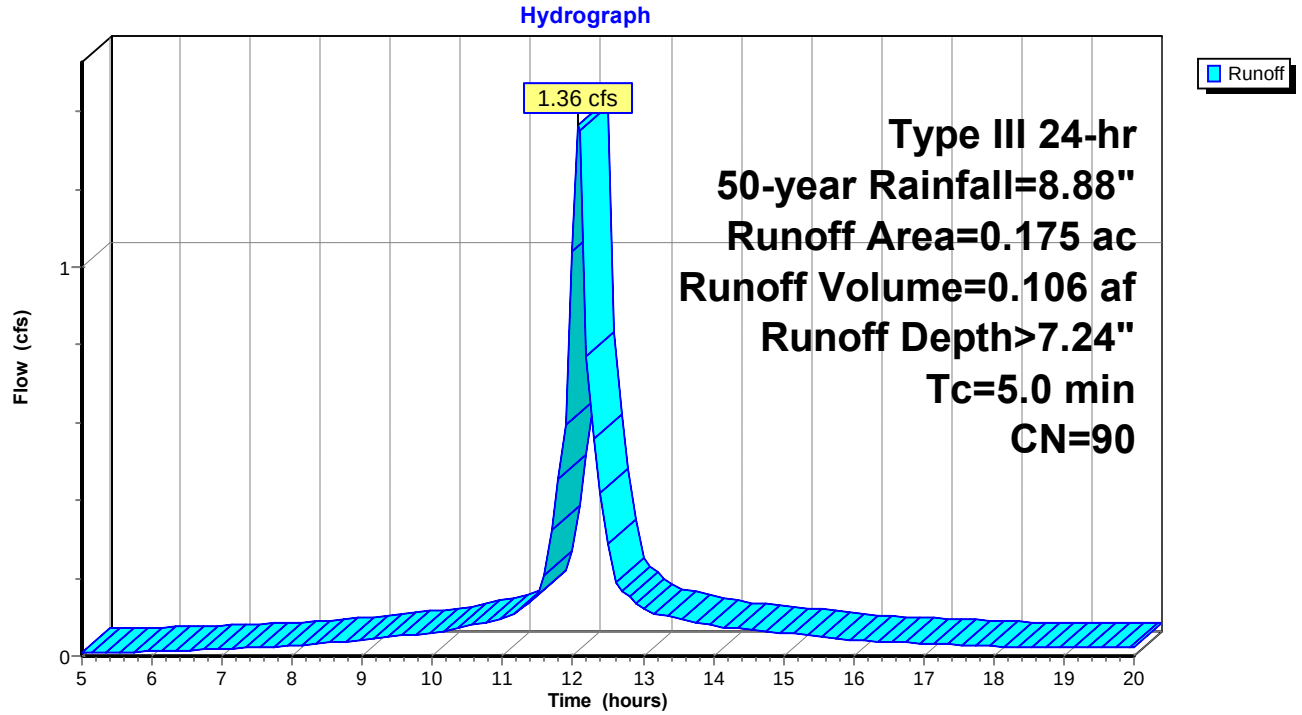
Runoff = 1.36 cfs @ 12.09 hrs, Volume= 0.106 af, Depth> 7.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



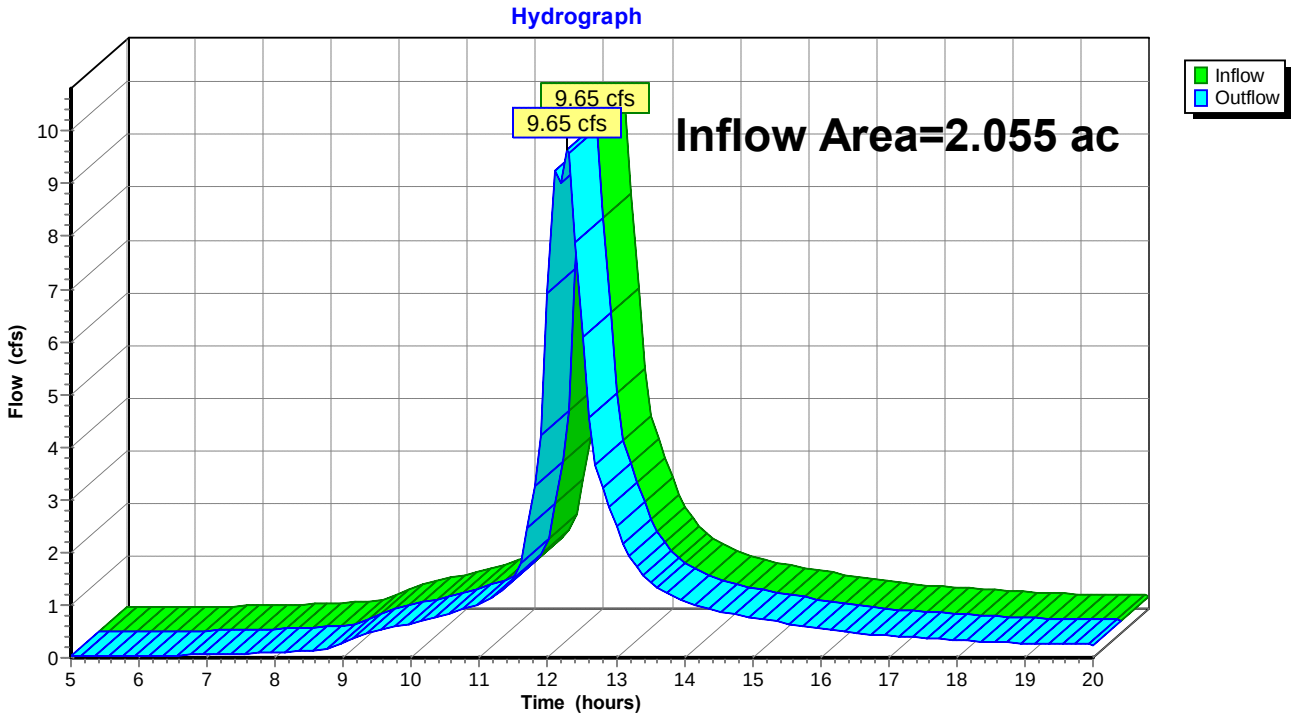
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 6.98" for 50-year event
Inflow = 9.65 cfs @ 12.27 hrs, Volume= 1.196 af
Outflow = 9.65 cfs @ 12.27 hrs, Volume= 1.196 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 7.88" for 50-year event
Inflow = 6.57 cfs @ 12.27 hrs, Volume= 0.742 af
Outflow = 6.76 cfs @ 12.31 hrs, Volume= 0.680 af, Atten= 0%, Lag= 2.6 min
Primary = 6.76 cfs @ 12.31 hrs, Volume= 0.680 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 6.23' @ 12.31 hrs Surf.Area= 2,860 sf Storage= 5,767 cf

Plug-Flow detention time= 71.0 min calculated for 0.679 af (91% of inflow)
Center-of-Mass det. time= 40.9 min (785.4 - 744.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.61 cfs @ 12.31 hrs HW=6.22' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 3.35 cfs @ 2.25 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.27 cfs @ 4.53 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

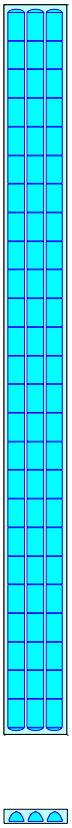
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

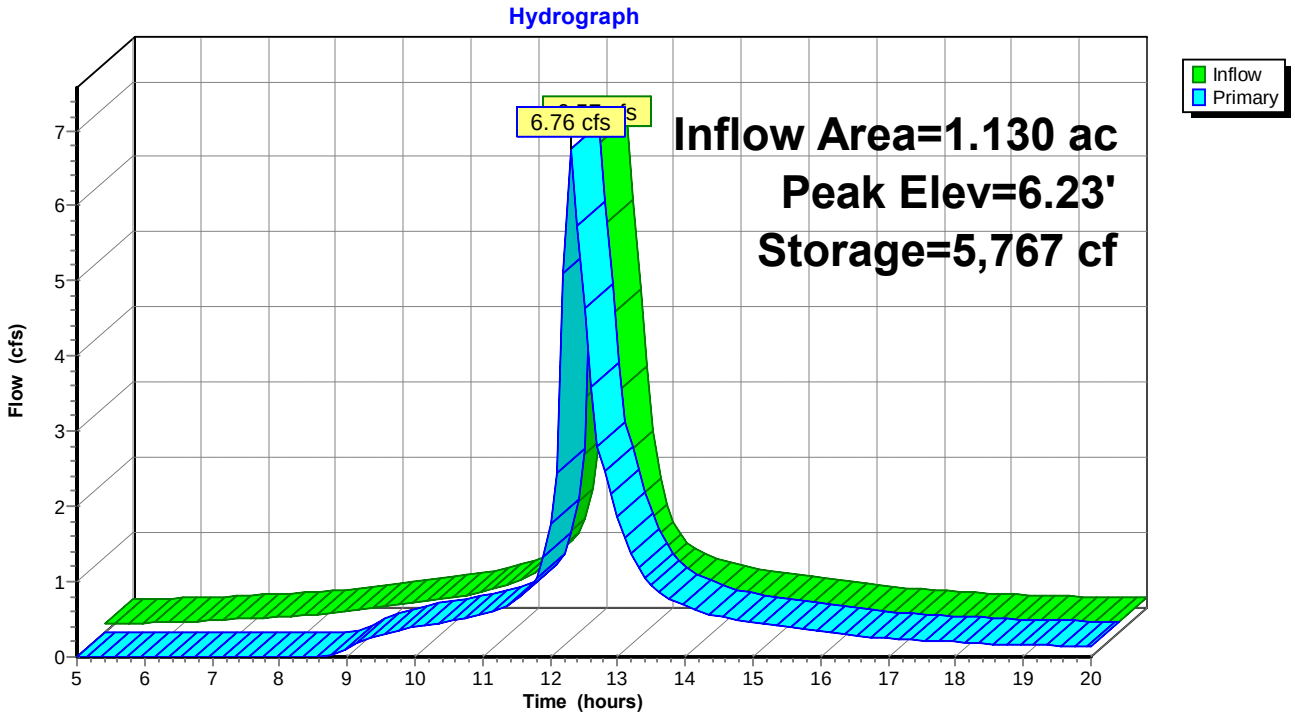
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



Time span=5.00-20.00 hrs, dt=0.10 hrs, 151 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Post Basin A Runoff Area=0.580 ac 96.55% Impervious Runoff Depth>8.76"
Tc=20.0 min CN=97 Runoff=3.74 cfs 0.423 af

Subcatchment 2S: Post Basin B Runoff Area=0.550 ac 96.73% Impervious Runoff Depth>8.76"
Tc=20.0 min CN=97 Runoff=3.55 cfs 0.401 af

Subcatchment 3S: Bypass A Runoff Area=0.750 ac 24.67% Impervious Runoff Depth>7.45"
Tc=5.0 min CN=84 Runoff=6.18 cfs 0.465 af

Subcatchment 4S: Bypass B Runoff Area=0.175 ac 53.14% Impervious Runoff Depth>8.13"
Tc=5.0 min CN=90 Runoff=1.52 cfs 0.119 af

Reach 2R: Combine Inflow=10.81 cfs 1.345 af
Outflow=10.81 cfs 1.345 af

Pond 1P: Pond A Peak Elev=6.27' Storage=5,814 cf Inflow=7.29 cfs 0.825 af
Outflow=7.31 cfs 0.761 af

Total Runoff Area = 2.055 ac Runoff Volume = 1.409 af Average Runoff Depth = 8.23"
33.33% Pervious = 0.685 ac 66.67% Impervious = 1.370 ac

Summary for Subcatchment 1S: Post Basin A

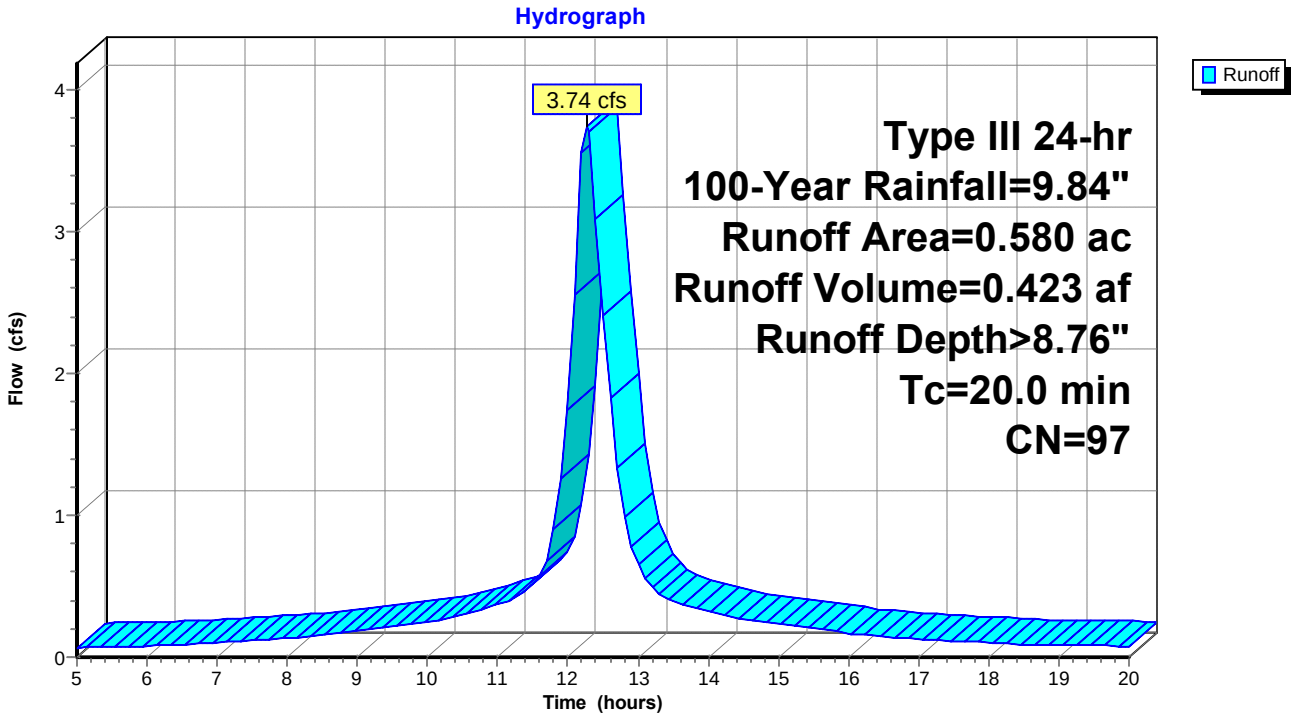
Runoff = 3.74 cfs @ 12.27 hrs, Volume= 0.423 af, Depth> 8.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D
0.560	98	Paved parking & roofs
0.580	97	Weighted Average
0.020		3.45% Pervious Area
0.560		96.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Post Basin A



Summary for Subcatchment 2S: Post Basin B

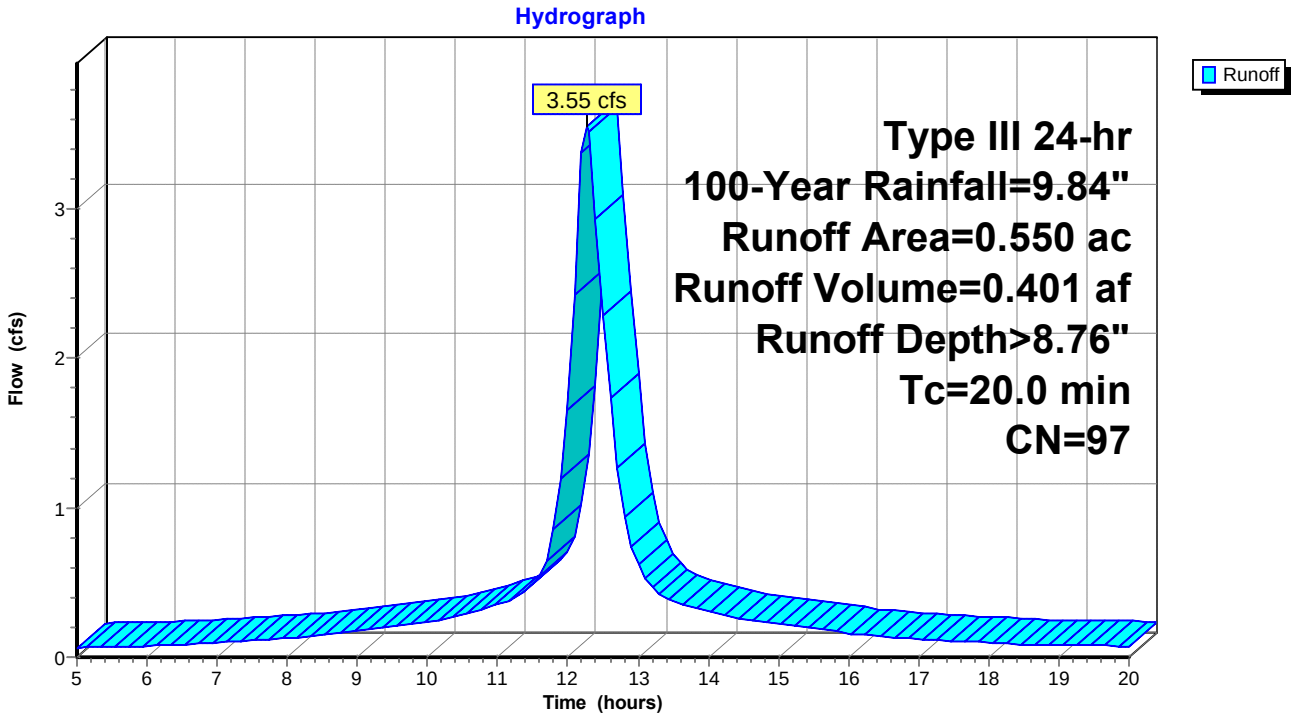
Runoff = 3.55 cfs @ 12.27 hrs, Volume= 0.401 af, Depth> 8.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
0.532	98	Paved parking, HSG D
0.018	80	>75% Grass cover, Good, HSG D
0.550	97	Weighted Average
0.018		3.27% Pervious Area
0.532		96.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 2S: Post Basin B



Summary for Subcatchment 3S: Bypass A

[49] Hint: Tc<2dt may require smaller dt

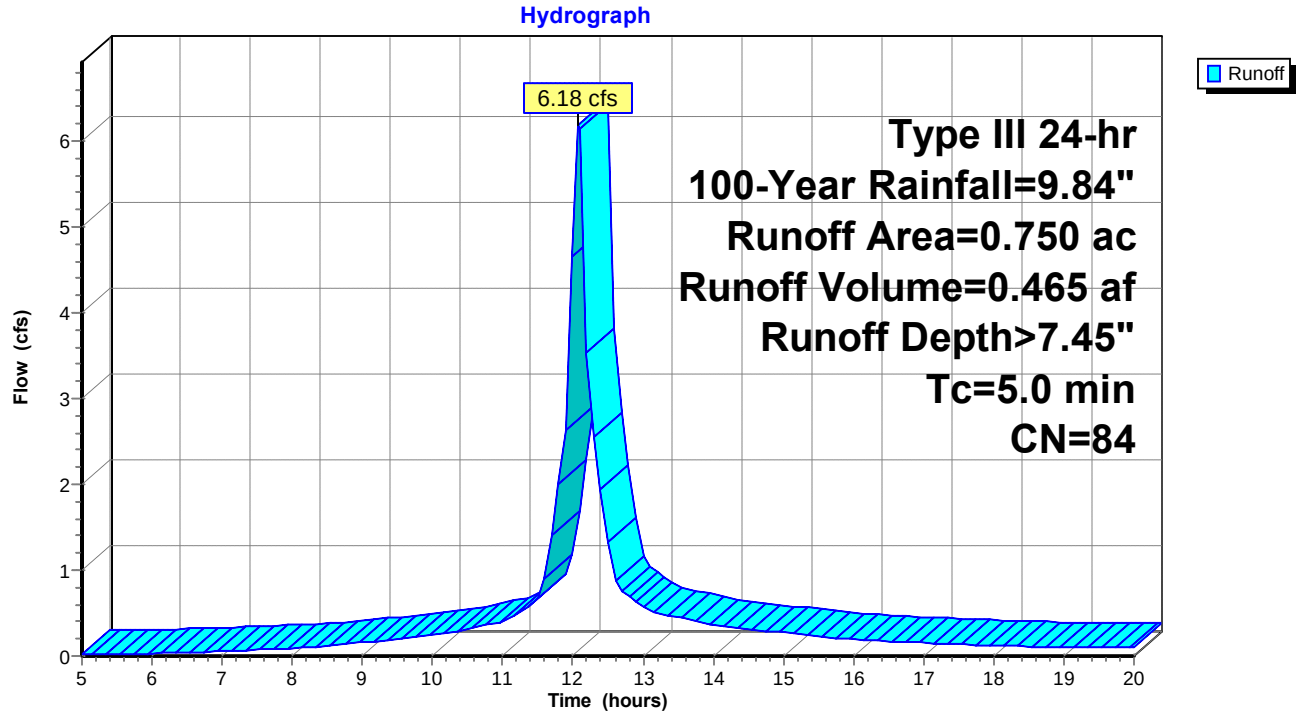
Runoff = 6.18 cfs @ 12.09 hrs, Volume= 0.465 af, Depth> 7.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
0.565	80	>75% Grass cover, Good, HSG D
0.185	98	Roofs, HSG D
0.750	84	Weighted Average
0.565		75.33% Pervious Area
0.185		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 3S: Bypass A



Summary for Subcatchment 4S: Bypass B

[49] Hint: Tc<2dt may require smaller dt

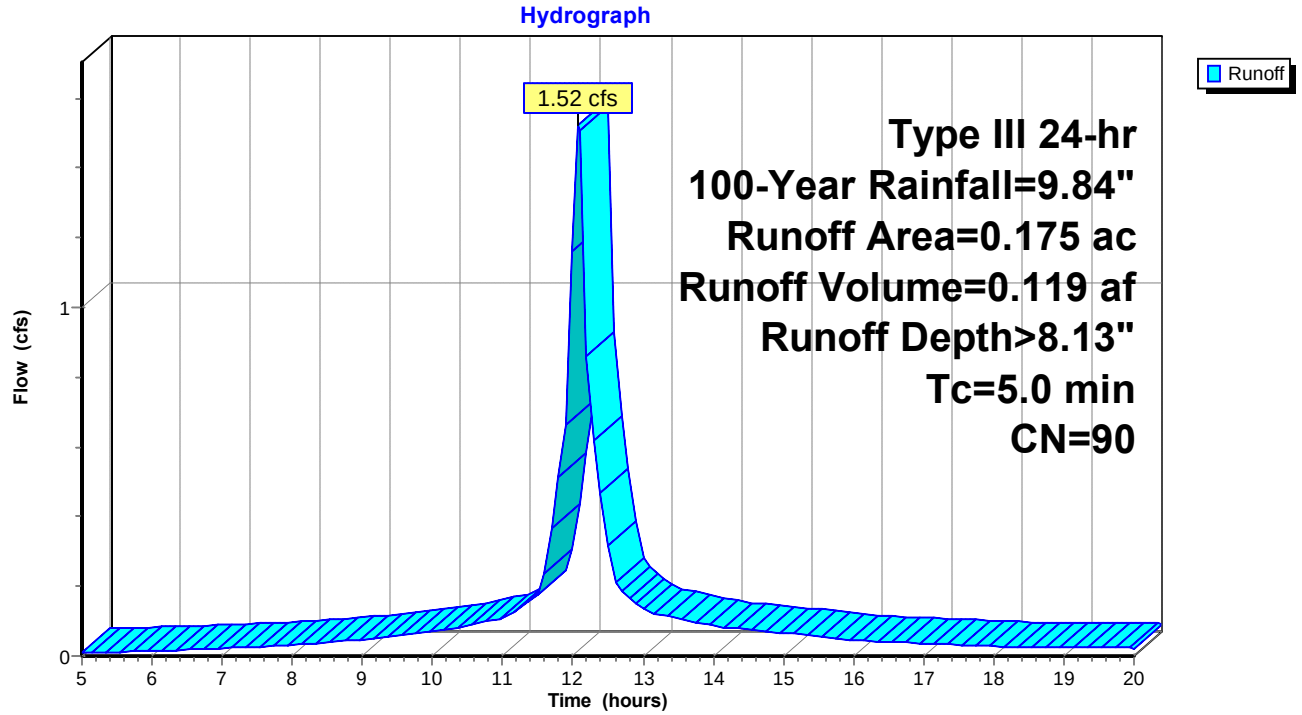
Runoff = 1.52 cfs @ 12.08 hrs, Volume= 0.119 af, Depth> 8.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
0.093	98	Paved parking, HSG D
0.082	80	>75% Grass cover, Good, HSG D
0.175	90	Weighted Average
0.082		46.86% Pervious Area
0.093		53.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 4S: Bypass B



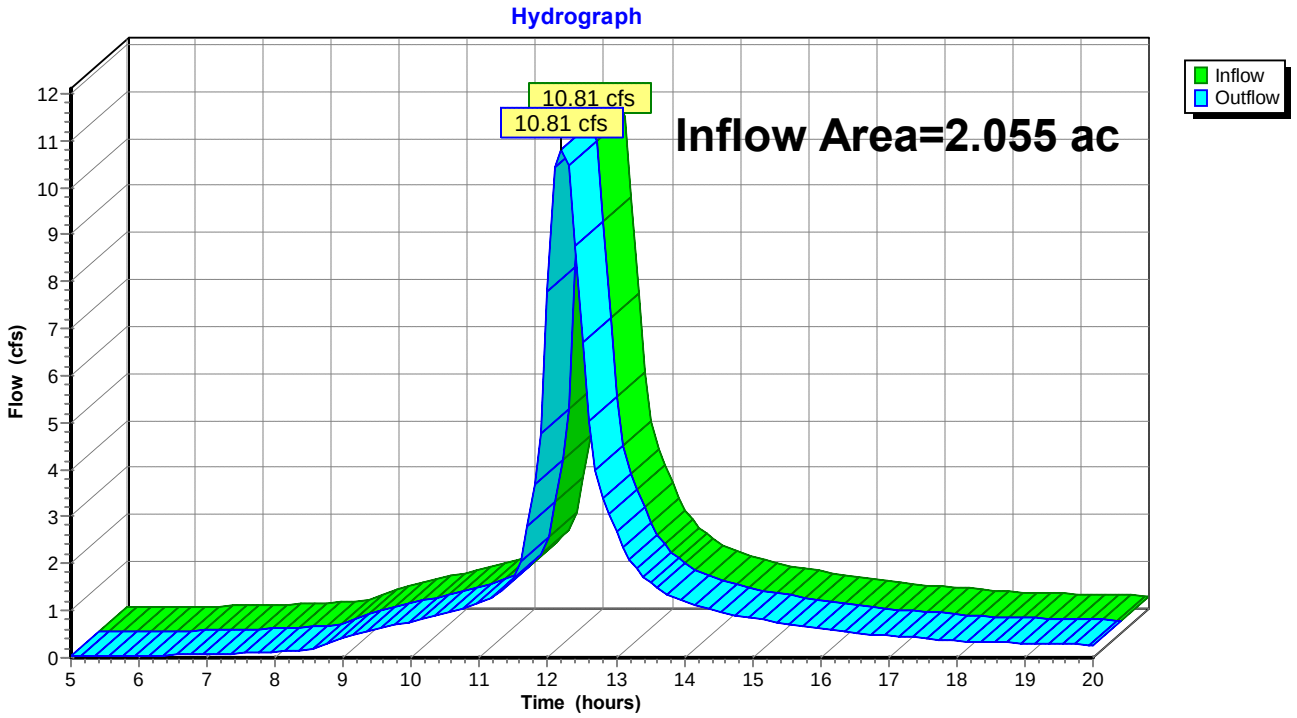
Summary for Reach 2R: Combine

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.055 ac, 66.67% Impervious, Inflow Depth > 7.86" for 100-Year event
Inflow = 10.81 cfs @ 12.20 hrs, Volume= 1.345 af
Outflow = 10.81 cfs @ 12.20 hrs, Volume= 1.345 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs

Reach 2R: Combine



Summary for Pond 1P: Pond A

[82] Warning: Early inflow requires earlier time span
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.130 ac, 96.64% Impervious, Inflow Depth > 8.76" for 100-Year event
Inflow = 7.29 cfs @ 12.27 hrs, Volume= 0.825 af
Outflow = 7.31 cfs @ 12.30 hrs, Volume= 0.761 af, Atten= 0%, Lag= 1.8 min
Primary = 7.31 cfs @ 12.30 hrs, Volume= 0.761 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.10 hrs
Peak Elev= 6.27' @ 12.30 hrs Surf.Area= 2,860 sf Storage= 5,814 cf

Plug-Flow detention time= 66.4 min calculated for 0.761 af (92% of inflow)
Center-of-Mass det. time= 38.3 min (782.4 - 744.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.00'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	3.50'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	5.75'	**39.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.30'	**9.0" long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.29 cfs @ 12.30 hrs HW=6.27' TW=0.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Rectangular Weir** (Weir Controls 3.89 cfs @ 2.37 fps)
└—**2=Sharp-Crested Rectangular Weir** (Weir Controls 3.40 cfs @ 4.59 fps)

Pond 1P: Pond A - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

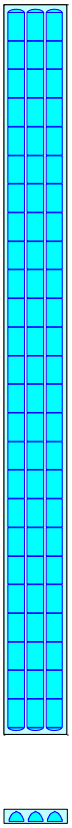
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

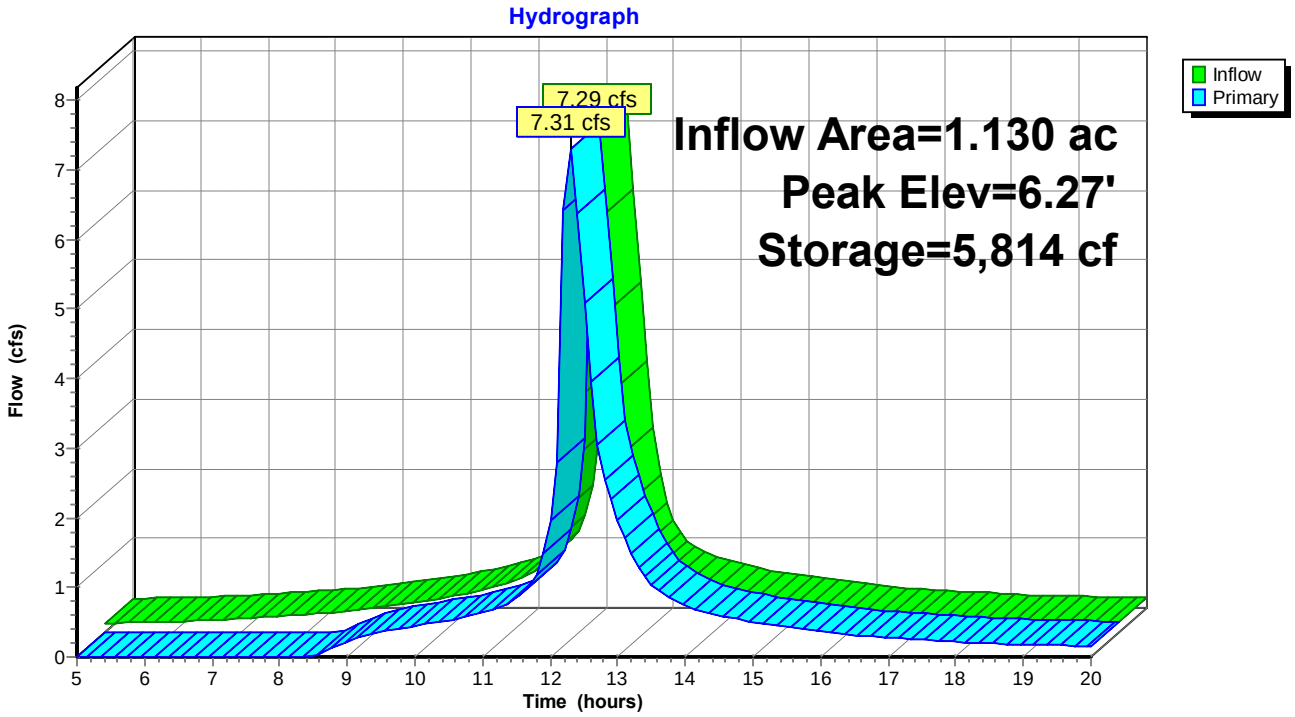
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 1P: Pond A



LEVEL II E&S
CERT.#21051

GEORGIA
REGISTERED
No. 23758
PROFESSIONAL
ENGINEER
JAY A. MAUPIN

EXP:11/01/2019

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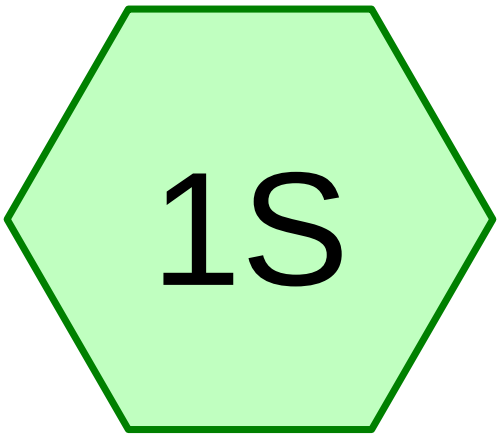
10% BASIN EXHIBIT

Sleep Inn / Main Stay

DRWN: BPM 8/1/19
CHK'D: JAM DATE

SHEET NO.
1 of 1
822-18-03
PROJECT NO.

SLEEP INN_072419.DWG



Pre - 10% Basin

Subcat Reach Pond Link

Routing Diagram for pre - 10% basin Analysis
Prepared by {enter your company name here}, Printed 9/27/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
32.000	85	1/2 acre lots, 25% imp, HSG D (1S)
3.200	80	>75% Grass cover, Good, HSG D (1S)
35.200	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
35.200	HSG D	1S
0.000	Other	
35.200		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	32.000	0.000	32.000	1/2 acre lots, 25% imp	1S
0.000	0.000	0.000	3.200	0.000	3.200	>75% Grass cover, Good	1S
0.000	**0.000**	**0.000**	**35.200**	**0.000**	**35.200**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre - 10% Basin Runoff Area=35.200 ac 22.73% Impervious Runoff Depth>1.94"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=43.24 cfs 5.703 af

Total Runoff Area = 35.200 ac Runoff Volume = 5.703 af Average Runoff Depth = 1.94"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Pre - 10% Basin

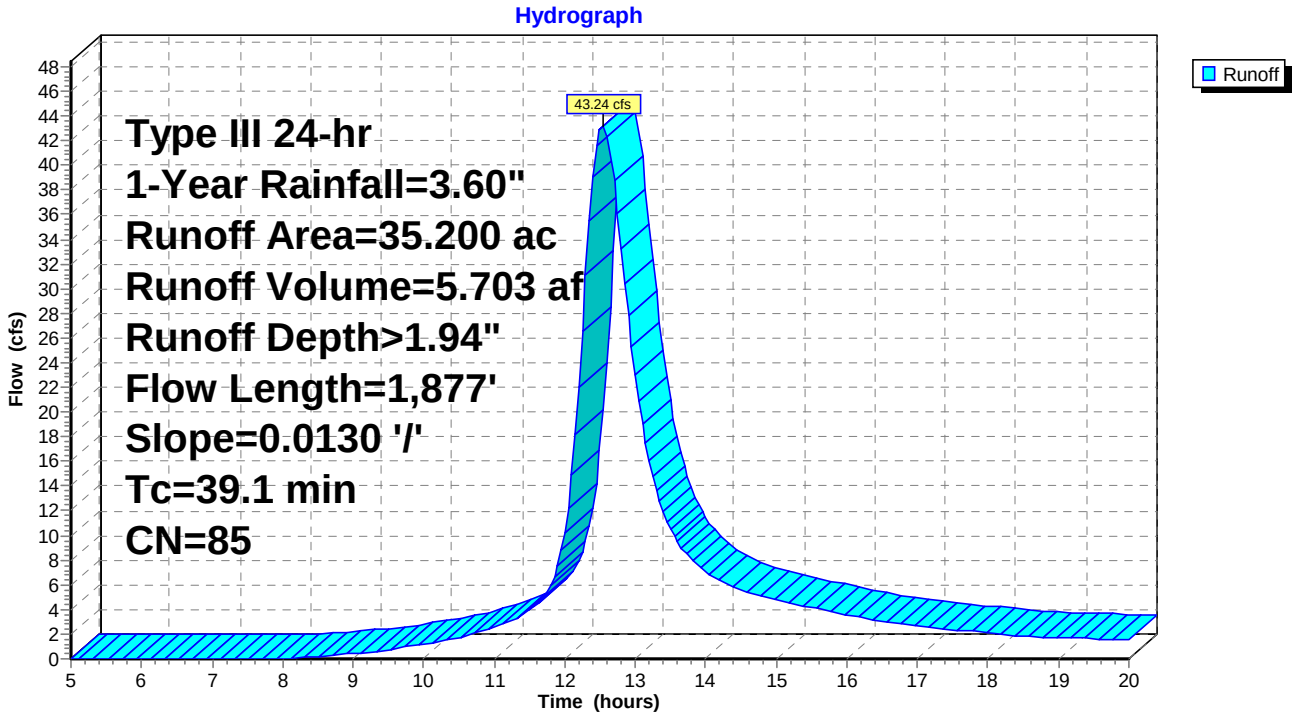
Runoff = 43.24 cfs @ 12.54 hrs, Volume= 5.703 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
3.200	80	>75% Grass cover, Good, HSG D
35.200	85	Weighted Average
27.200		77.27% Pervious Area
8.000		22.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 1S: Pre - 10% Basin



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre - 10% Basin Runoff Area=35.200 ac 22.73% Impervious Runoff Depth>4.66"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=100.50 cfs 13.671 af

Total Runoff Area = 35.200 ac Runoff Volume = 13.671 af Average Runoff Depth = 4.66"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Pre - 10% Basin

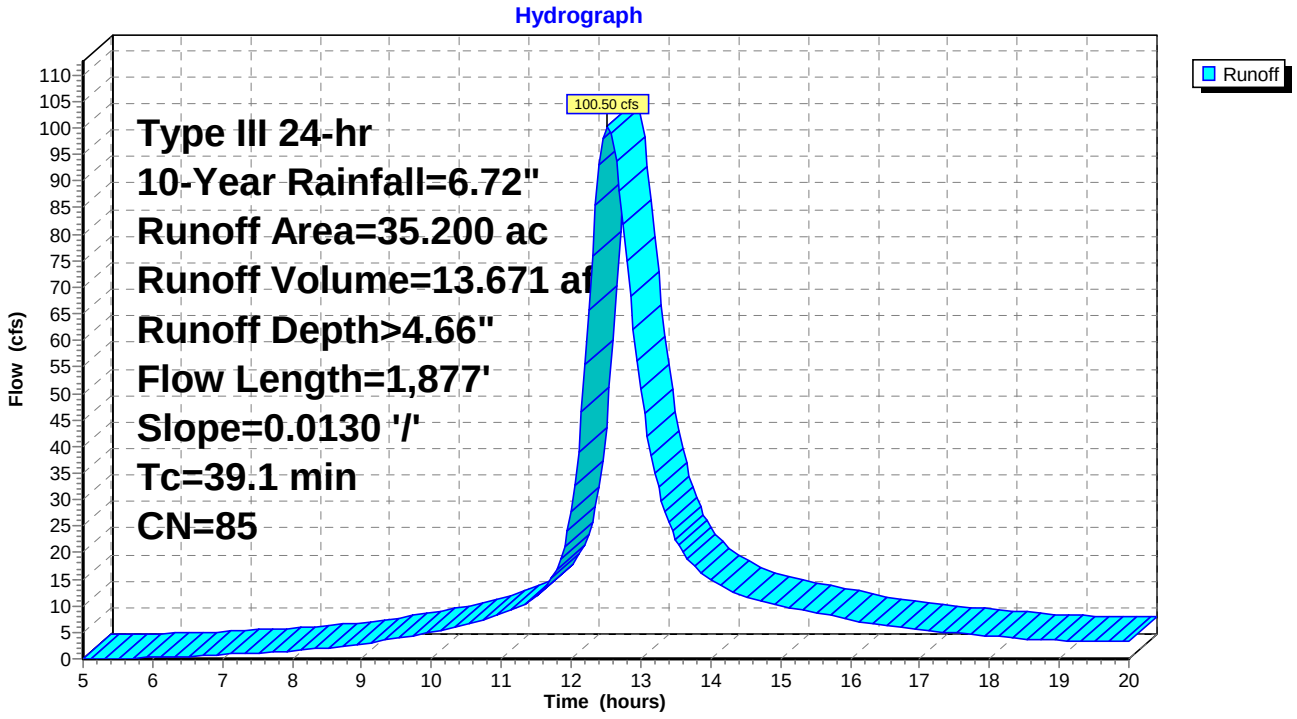
Runoff = 100.50 cfs @ 12.53 hrs, Volume= 13.671 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
3.200	80	>75% Grass cover, Good, HSG D
35.200	85	Weighted Average
27.200		77.27% Pervious Area
8.000		22.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 1S: Pre - 10% Basin



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre - 10% Basin Runoff Area=35.200 ac 22.73% Impervious Runoff Depth>6.62"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=140.26 cfs 19.430 af

Total Runoff Area = 35.200 ac Runoff Volume = 19.430 af Average Runoff Depth = 6.62"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Pre - 10% Basin

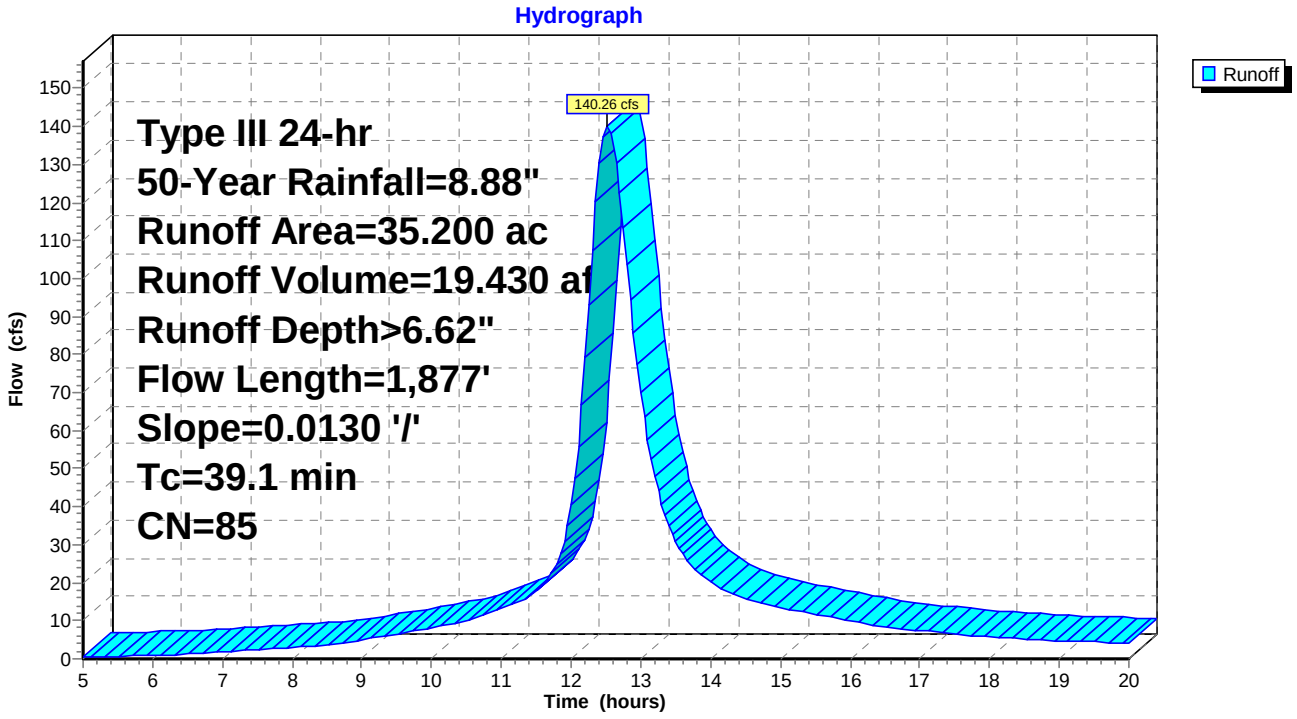
Runoff = 140.26 cfs @ 12.52 hrs, Volume= 19.430 af, Depth> 6.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-Year Rainfall=8.88"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
3.200	80	>75% Grass cover, Good, HSG D
35.200	85	Weighted Average
27.200		77.27% Pervious Area
8.000		22.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 1S: Pre - 10% Basin



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre - 10% Basin Runoff Area=35.200 ac 22.73% Impervious Runoff Depth>7.50"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=157.85 cfs 22.010 af

Total Runoff Area = 35.200 ac Runoff Volume = 22.010 af Average Runoff Depth = 7.50"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Pre - 10% Basin

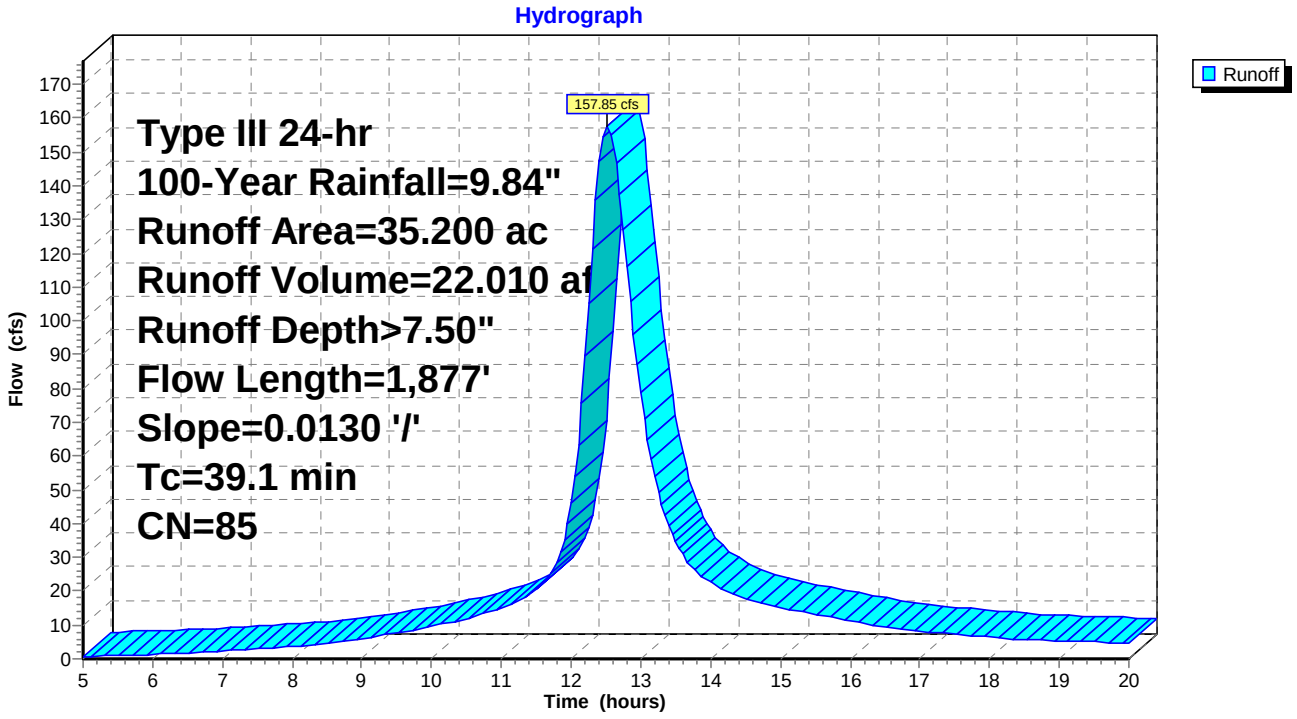
Runoff = 157.85 cfs @ 12.52 hrs, Volume= 22.010 af, Depth> 7.50"

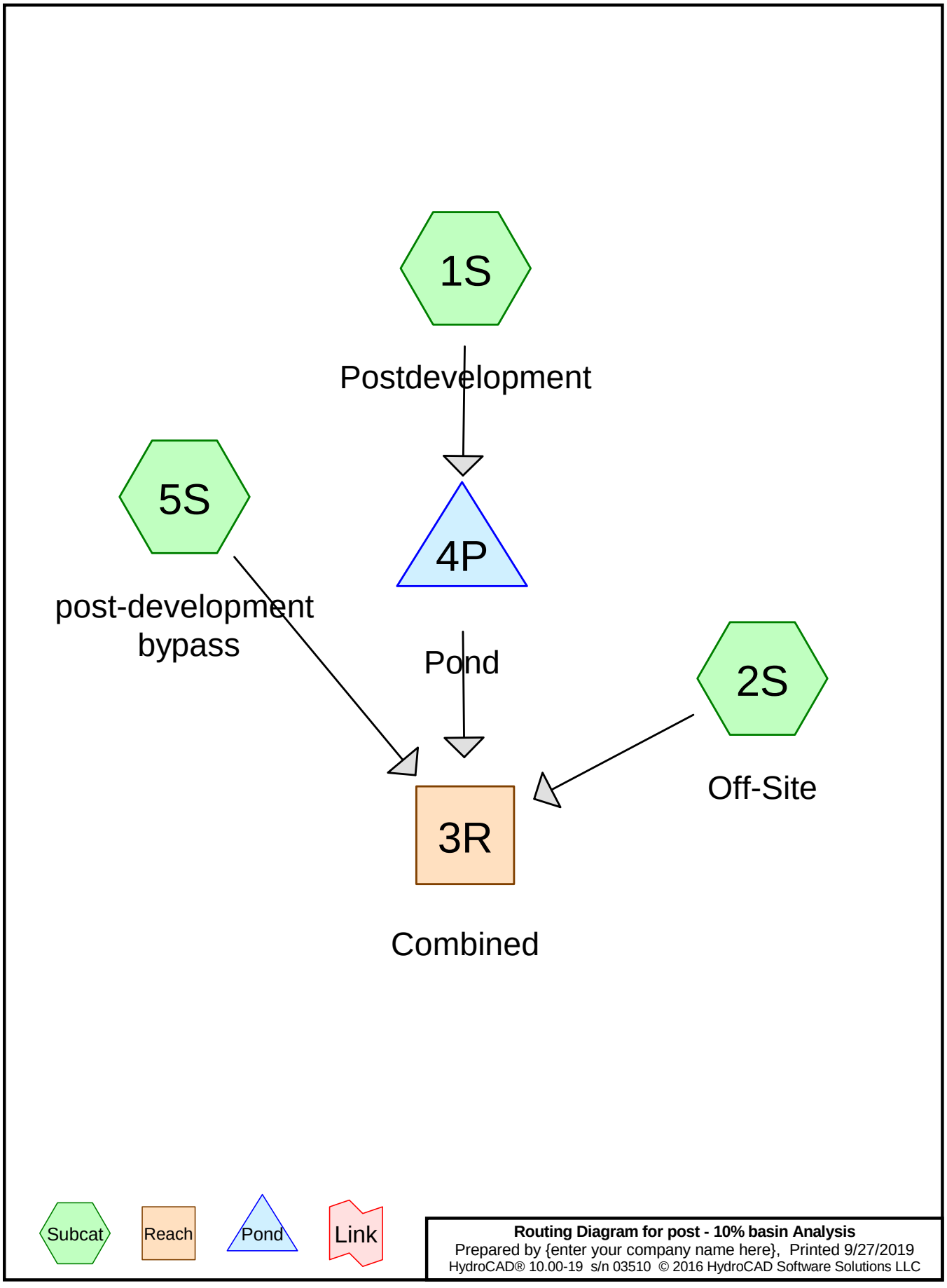
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
3.200	80	>75% Grass cover, Good, HSG D
35.200	85	Weighted Average
27.200		77.27% Pervious Area
8.000		22.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 1S: Pre - 10% Basin





Routing Diagram for post - 10% basin Analysis
Prepared by {enter your company name here}, Printed 9/27/2019
HydroCAD® 10.00-19 s/n 03510 © 2016 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.140	97	(1S)
0.960	85	(5S)
32.000	85	1/2 acre lots, 25% imp, HSG D (2S)
1.100	80	>75% Grass cover, Good, HSG D (2S)
35.200	**85**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
33.100	HSG D	2S
2.100	Other	1S, 5S
35.200		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	2.100	2.100		1S, 5S
0.000	0.000	0.000	32.000	0.000	32.000	1/2 acre lots, 25% imp	2S
0.000	0.000	0.000	1.100	0.000	1.100	>75% Grass cover, Good	2S
0.000	**0.000**	**0.000**	**33.100**	**2.100**	**35.200**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Postdevelopment Runoff Area=1.140 ac 0.00% Impervious Runoff Depth>3.05"
Tc=20.0 min CN=97 Runoff=2.68 cfs 0.290 af

Subcatchment 2S: Off-Site Runoff Area=33.100 ac 24.17% Impervious Runoff Depth>1.94"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=40.66 cfs 5.363 af

Subcatchment 5S: post-development bypass Runoff Area=0.960 ac 0.00% Impervious Runoff Depth>1.96"
Tc=10.0 min CN=85 Runoff=2.04 cfs 0.157 af

Reach 3R: Combined Inflow=43.19 cfs 5.751 af
Outflow=43.19 cfs 5.751 af

Pond 4P: Pond Peak Elev=5.82' Storage=4,491 cf Inflow=2.68 cfs 0.290 af
Outflow=2.02 cfs 0.231 af

Total Runoff Area = 35.200 ac Runoff Volume = 5.810 af Average Runoff Depth = 1.98"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Postdevelopment

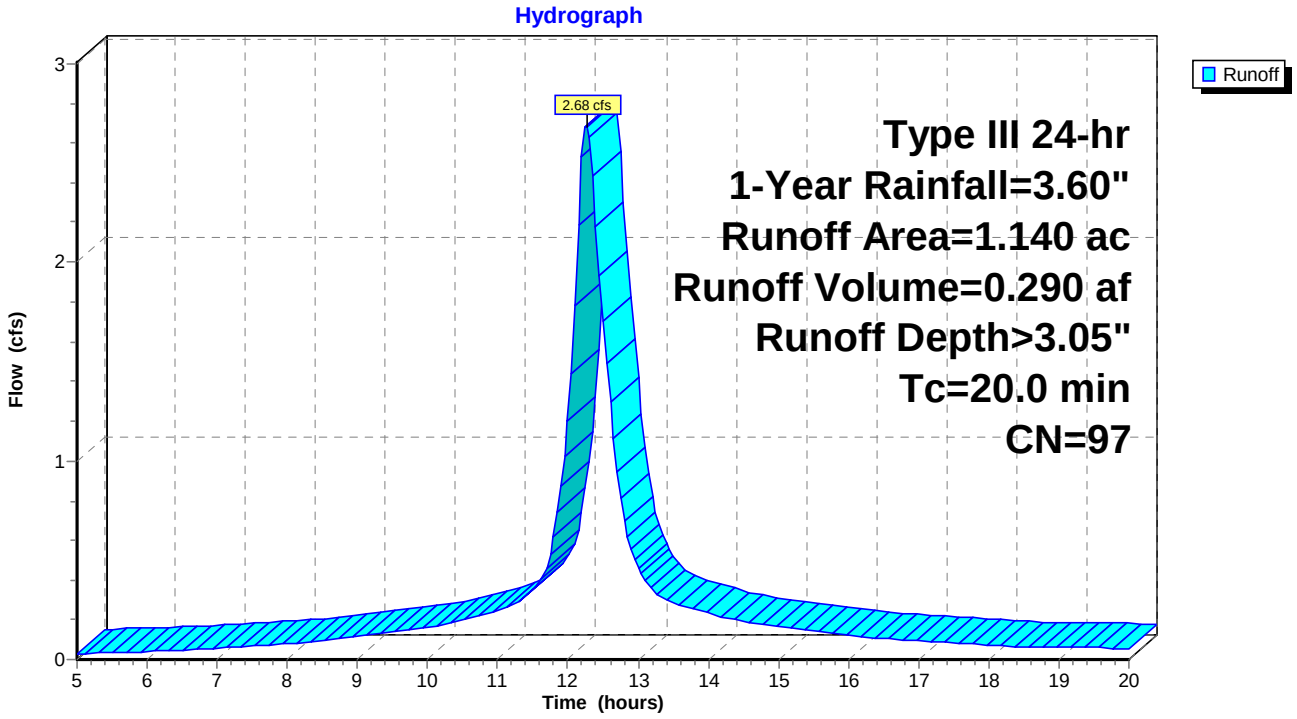
Runoff = 2.68 cfs @ 12.26 hrs, Volume= 0.290 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=3.60"

	Area (ac)	CN	Description
*	1.140	97	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Postdevelopment



Summary for Subcatchment 2S: Off-Site

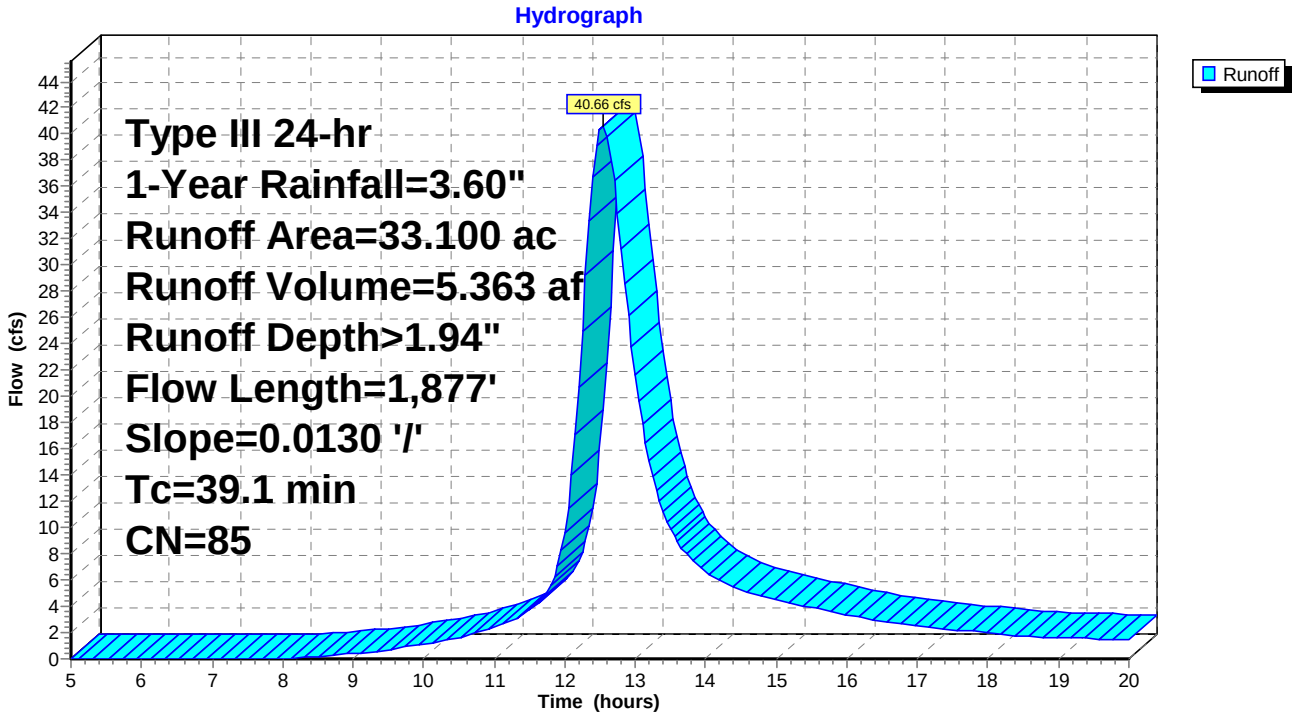
Runoff = 40.66 cfs @ 12.54 hrs, Volume= 5.363 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=3.60"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
1.100	80	>75% Grass cover, Good, HSG D
33.100	85	Weighted Average
25.100		75.83% Pervious Area
8.000		24.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 2S: Off-Site



Summary for Subcatchment 5S: post-development bypass

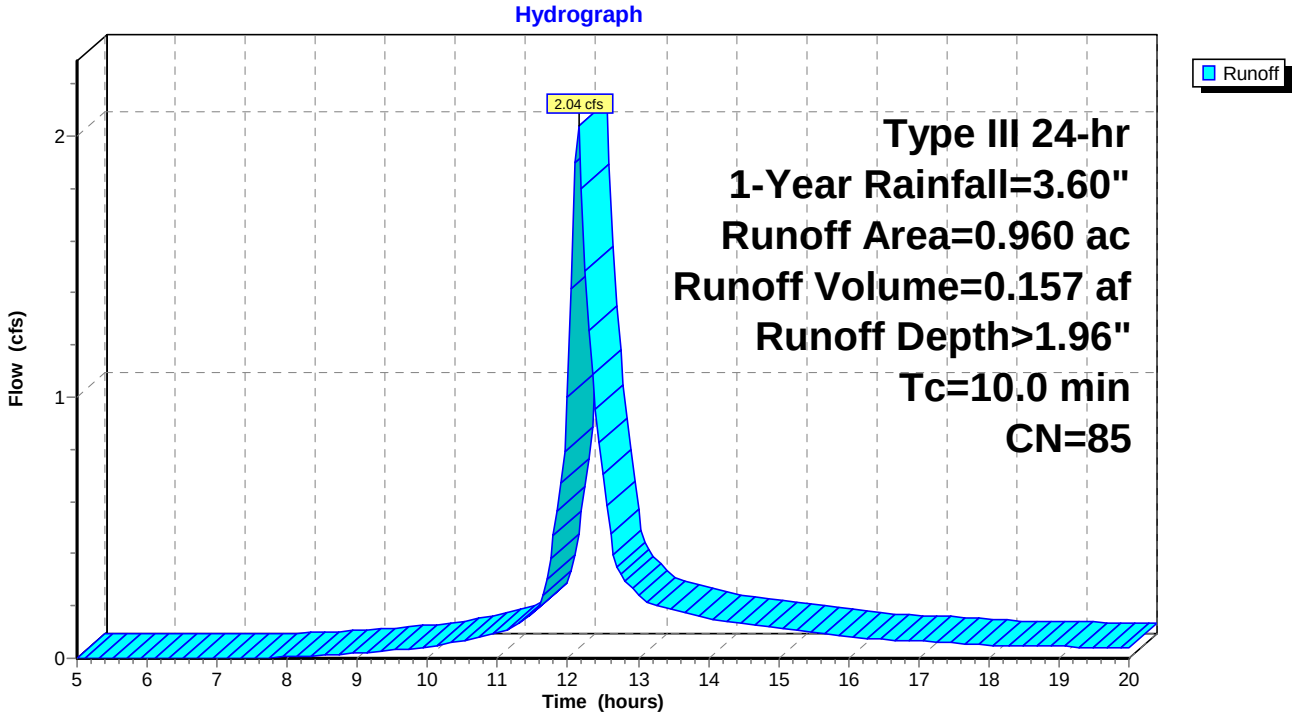
Runoff = 2.04 cfs @ 12.14 hrs, Volume= 0.157 af, Depth> 1.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=3.60"

	Area (ac)	CN	Description
*	0.960	85	
	0.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: post-development bypass



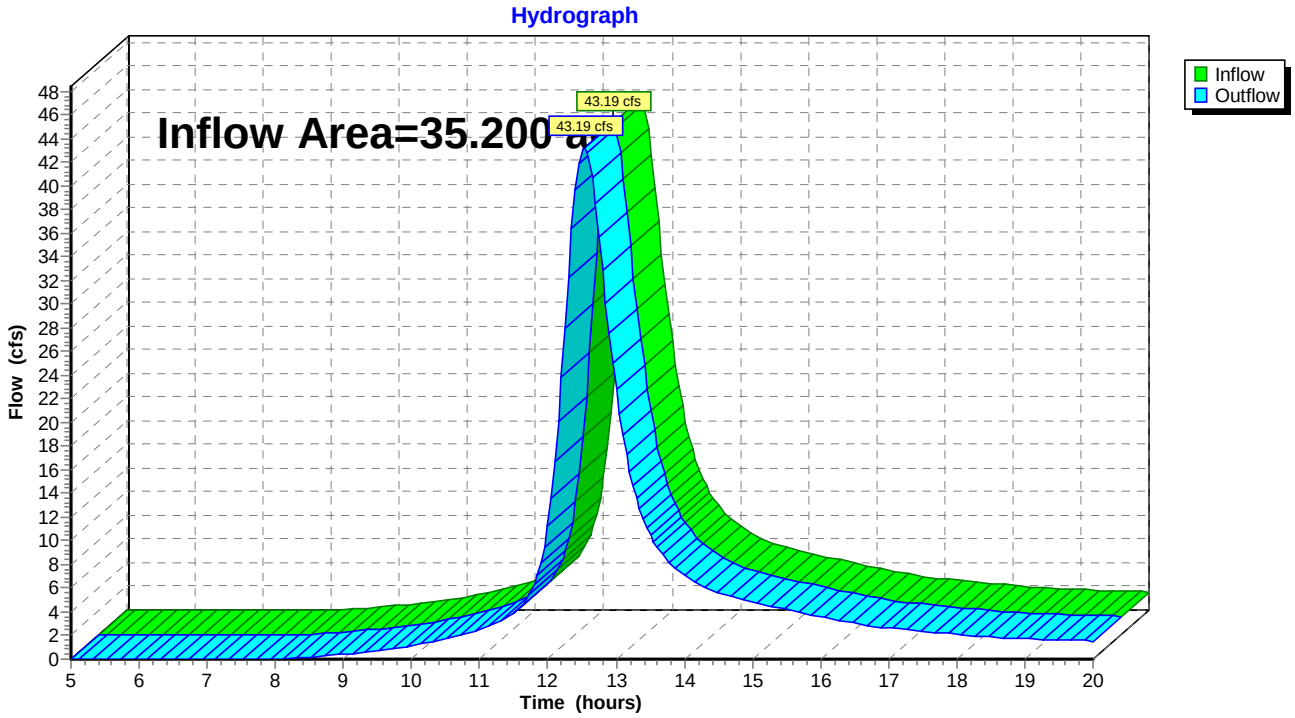
Summary for Reach 3R: Combined

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 35.200 ac, 22.73% Impervious, Inflow Depth > 1.96" for 1-Year event
Inflow = 43.19 cfs @ 12.53 hrs, Volume= 5.751 af
Outflow = 43.19 cfs @ 12.53 hrs, Volume= 5.751 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: Combined



Summary for Pond 4P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.140 ac, 0.00% Impervious, Inflow Depth > 3.05" for 1-Year event
Inflow = 2.68 cfs @ 12.26 hrs, Volume= 0.290 af
Outflow = 2.02 cfs @ 12.43 hrs, Volume= 0.231 af, Atten= 25%, Lag= 10.3 min
Primary = 2.02 cfs @ 12.43 hrs, Volume= 0.231 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 5.82' @ 12.43 hrs Surf.Area= 2,860 sf Storage= 4,491 cf

Plug-Flow detention time= 117.6 min calculated for 0.230 af (79% of inflow)
Center-of-Mass det. time= 64.5 min (817.1 - 752.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.50'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	4.00'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	**3.2' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.80'	**0.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.01 cfs @ 12.43 hrs HW=5.82' TW=3.50' (Fixed TW Elev= 3.50')
1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
2=Sharp-Crested Rectangular Weir (Weir Controls 2.01 cfs @ 3.31 fps)

Pond 4P: Pond - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

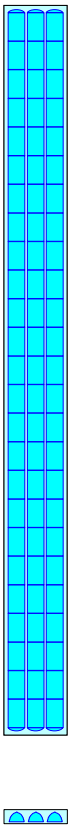
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

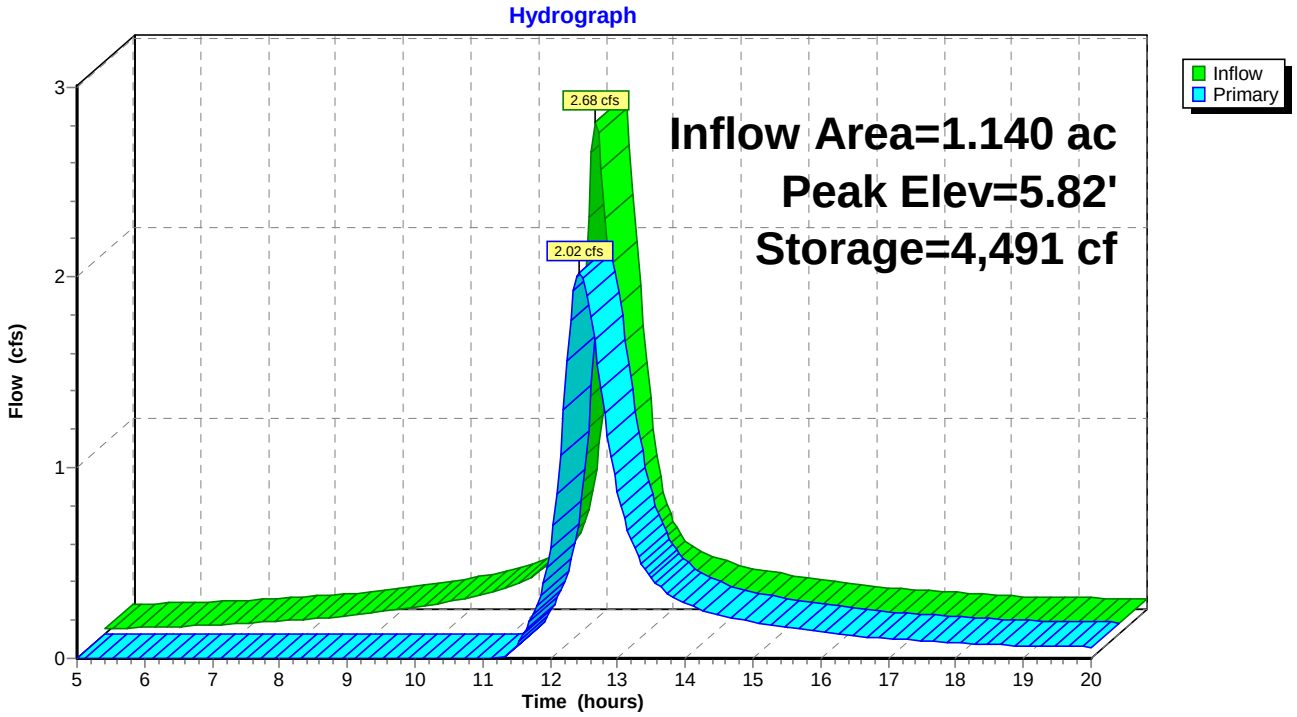
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 4P: Pond


Hydrograph
Inflow
Primary
2.68 cfs
2.02 cfs
Inflow Area=1.140 ac
Peak Elev=5.82'
Storage=4,491 cf
Flow (cfs)
Time (hours)
0
1
2
3
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Postdevelopment Runoff Area=1.140 ac 0.00% Impervious Runoff Depth>5.91"
Tc=20.0 min CN=97 Runoff=5.10 cfs 0.561 af

Subcatchment 2S: Off-Site Runoff Area=33.100 ac 24.17% Impervious Runoff Depth>4.66"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=94.51 cfs 12.855 af

Subcatchment 5S: post-development bypass Runoff Area=0.960 ac 0.00% Impervious Runoff Depth>4.70"
Tc=10.0 min CN=85 Runoff=4.73 cfs 0.376 af

Reach 3R: Combined Inflow=99.37 cfs 13.731 af
Outflow=99.37 cfs 13.731 af

Pond 4P: Pond Peak Elev=6.33' Storage=5,289 cf Inflow=5.10 cfs 0.561 af
Outflow=4.95 cfs 0.500 af

Total Runoff Area = 35.200 ac Runoff Volume = 13.792 af Average Runoff Depth = 4.70"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Postdevelopment

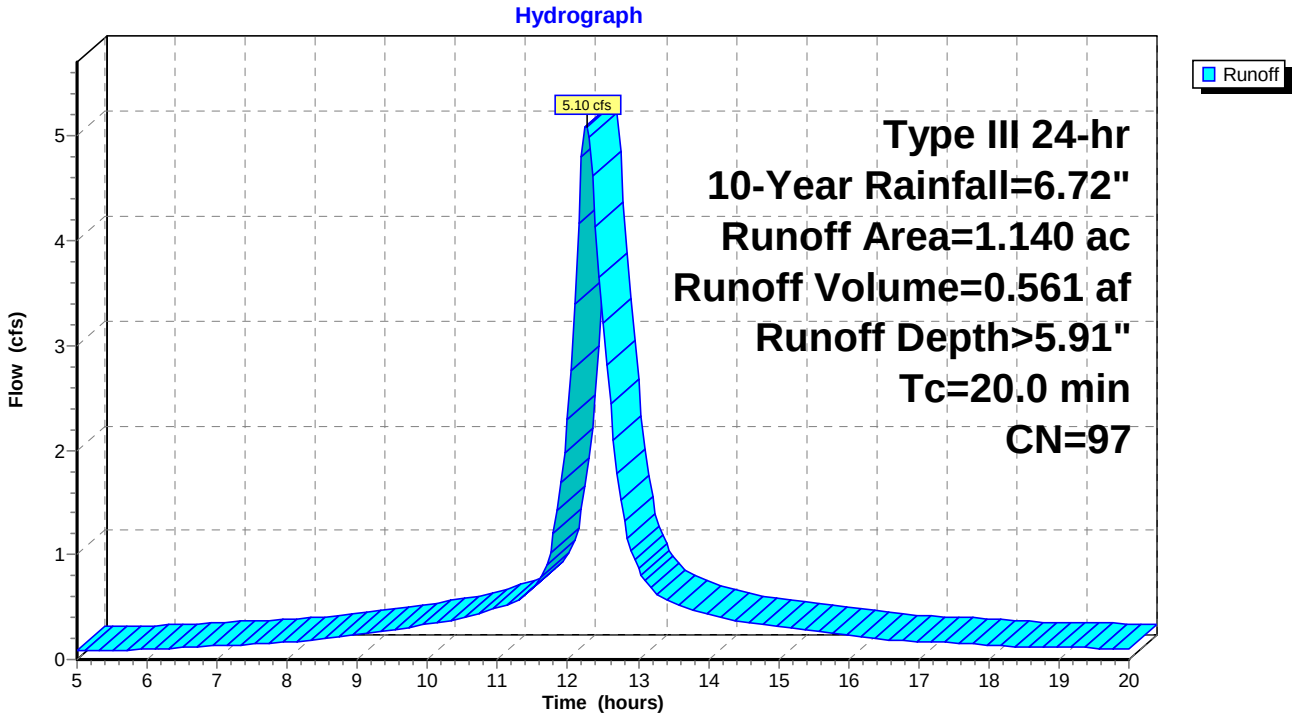
Runoff = 5.10 cfs @ 12.26 hrs, Volume= 0.561 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=6.72"

	Area (ac)	CN	Description
*	1.140	97	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Postdevelopment



Summary for Subcatchment 2S: Off-Site

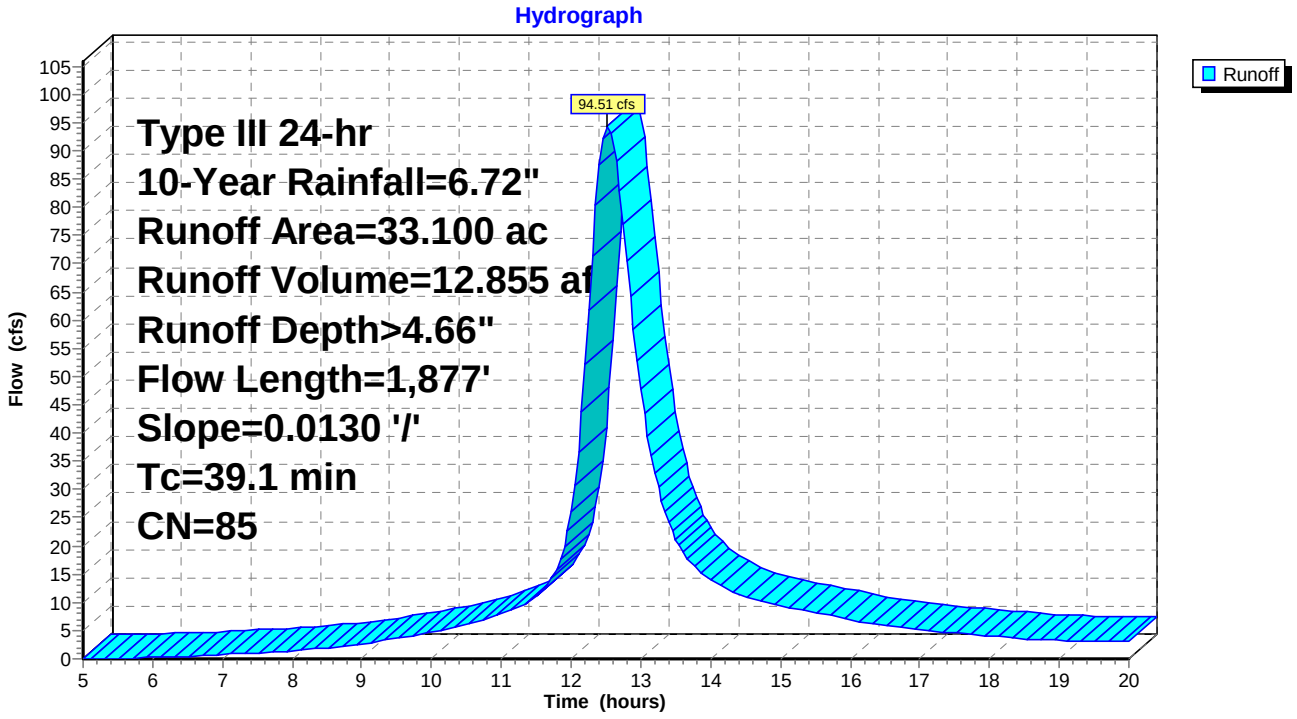
Runoff = 94.51 cfs @ 12.53 hrs, Volume= 12.855 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=6.72"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
1.100	80	>75% Grass cover, Good, HSG D
33.100	85	Weighted Average
25.100		75.83% Pervious Area
8.000		24.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 2S: Off-Site



Summary for Subcatchment 5S: post-development bypass

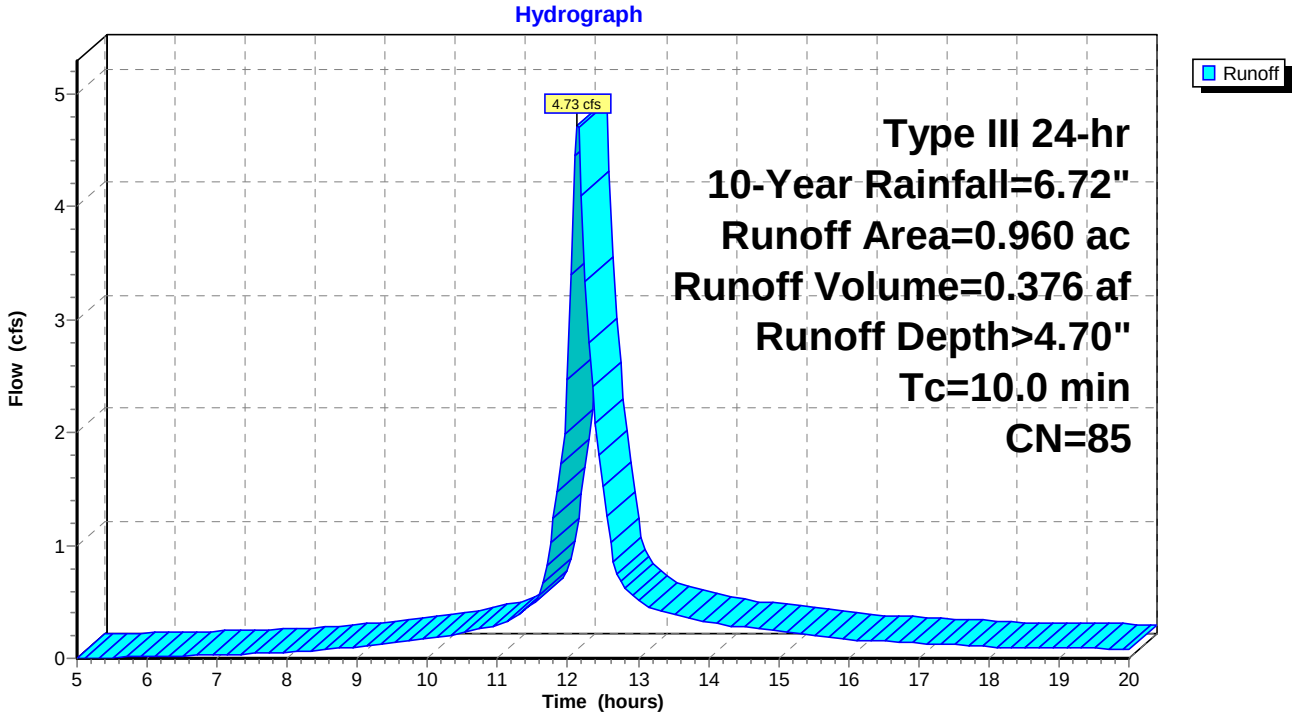
Runoff = 4.73 cfs @ 12.14 hrs, Volume= 0.376 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=6.72"

	Area (ac)	CN	Description
*	0.960	85	
	0.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: post-development bypass



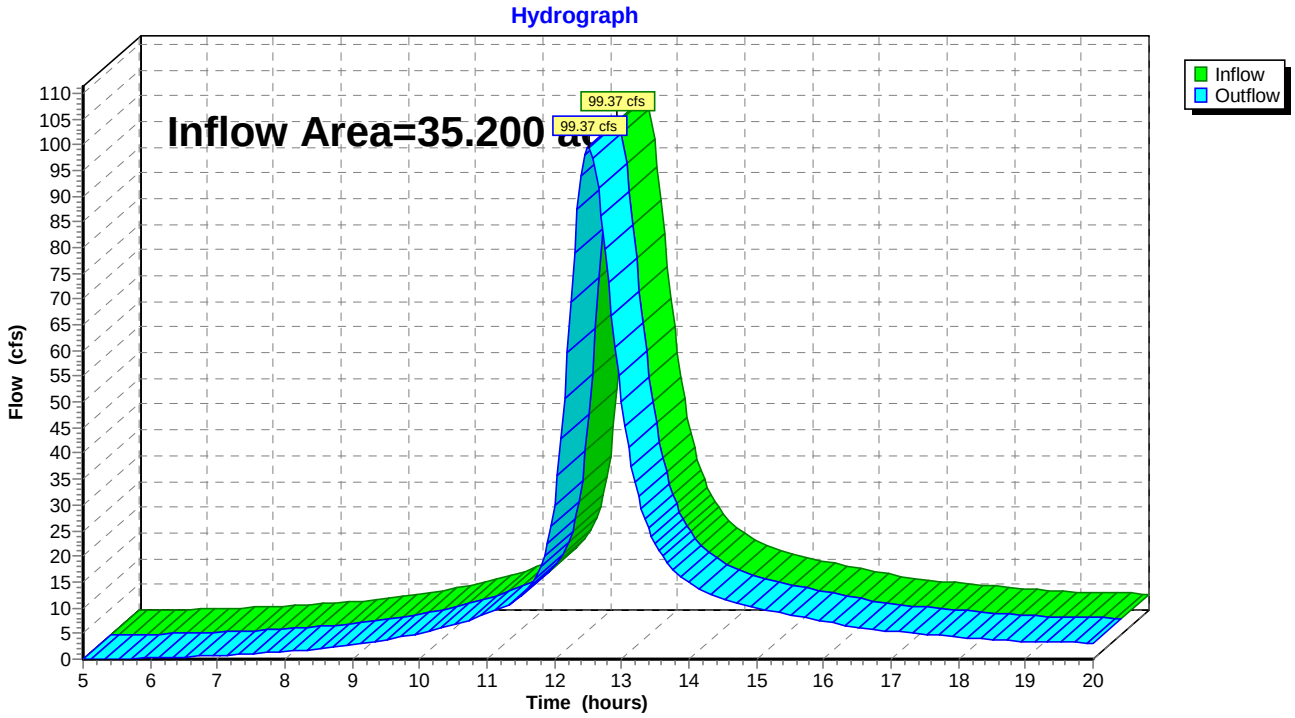
Summary for Reach 3R: Combined

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 35.200 ac, 22.73% Impervious, Inflow Depth > 4.68" for 10-Year event
Inflow = 99.37 cfs @ 12.51 hrs, Volume= 13.731 af
Outflow = 99.37 cfs @ 12.51 hrs, Volume= 13.731 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: Combined



Summary for Pond 4P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.140 ac, 0.00% Impervious, Inflow Depth > 5.91" for 10-Year event
Inflow = 5.10 cfs @ 12.26 hrs, Volume= 0.561 af
Outflow = 4.95 cfs @ 12.32 hrs, Volume= 0.500 af, Atten= 3%, Lag= 3.3 min
Primary = 4.95 cfs @ 12.32 hrs, Volume= 0.500 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 6.33' @ 12.32 hrs Surf.Area= 2,860 sf Storage= 5,289 cf

Plug-Flow detention time= 82.7 min calculated for 0.500 af (89% of inflow)
Center-of-Mass det. time= 46.8 min (793.0 - 746.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.50'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	4.00'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	**3.2' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.80'	**0.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=4.88 cfs @ 12.32 hrs HW=6.32' TW=3.50' (Fixed TW Elev= 3.50')
1=Sharp-Crested Rectangular Weir (Weir Controls 1.85 cfs @ 1.85 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 3.04 cfs @ 4.03 fps)

Pond 4P: Pond - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

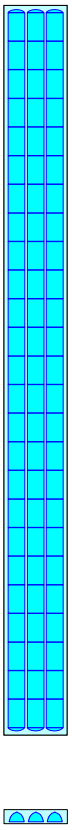
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

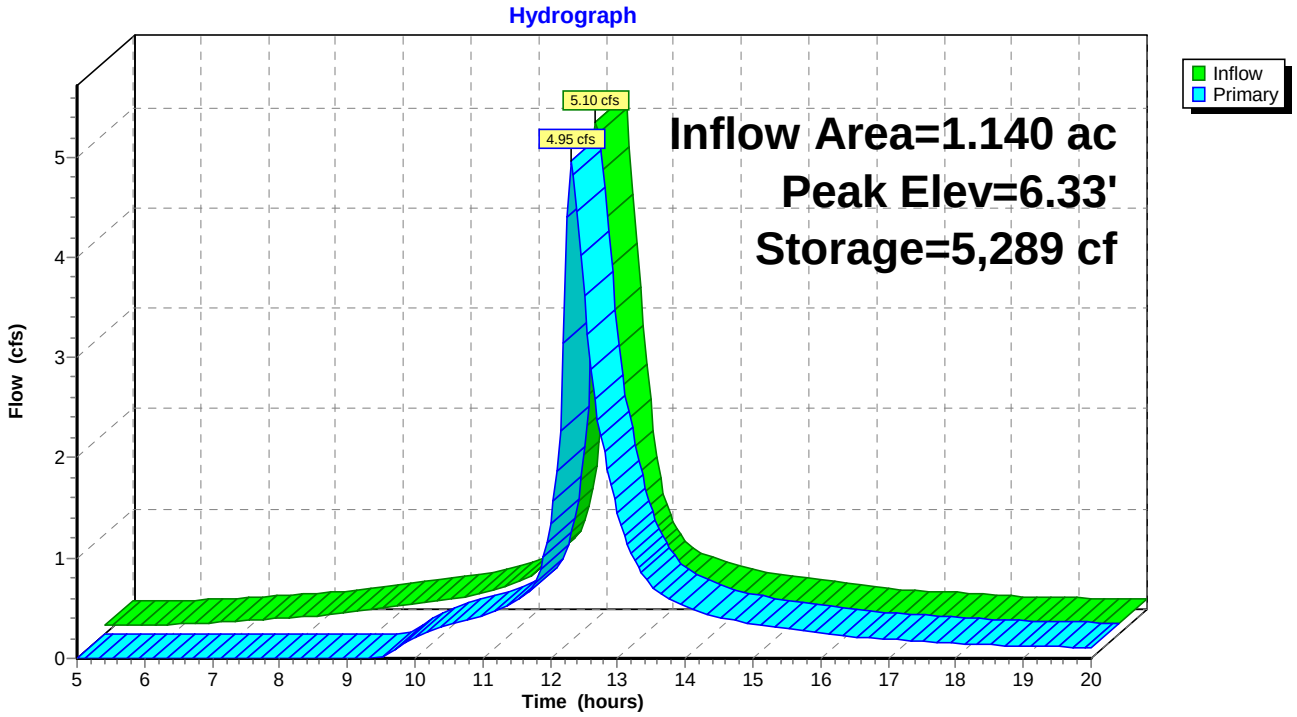
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 4P: Pond


Hydrograph
Inflow
Primary
5.10 cfs
4.95 cfs
Inflow Area=1.140 ac
Peak Elev=6.33'
Storage=5,289 cf
Flow (cfs)
0
1
2
3
4
5
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Time (hours)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Postdevelopment Runoff Area=1.140 ac 0.00% Impervious Runoff Depth>7.88"
Tc=20.0 min CN=97 Runoff=6.76 cfs 0.748 af

Subcatchment 2S: Off-Site Runoff Area=33.100 ac 24.17% Impervious Runoff Depth>6.62"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=131.89 cfs 18.271 af

Subcatchment 5S: post-development bypass Runoff Area=0.960 ac 0.00% Impervious Runoff Depth>6.67"
Tc=10.0 min CN=85 Runoff=6.58 cfs 0.534 af

Reach 3R: Combined Inflow=138.39 cfs 19.490 af
Outflow=138.39 cfs 19.490 af

Pond 4P: Pond Peak Elev=6.48' Storage=5,476 cf Inflow=6.76 cfs 0.748 af
Outflow=6.67 cfs 0.686 af

Total Runoff Area = 35.200 ac Runoff Volume = 19.553 af Average Runoff Depth = 6.67"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Postdevelopment

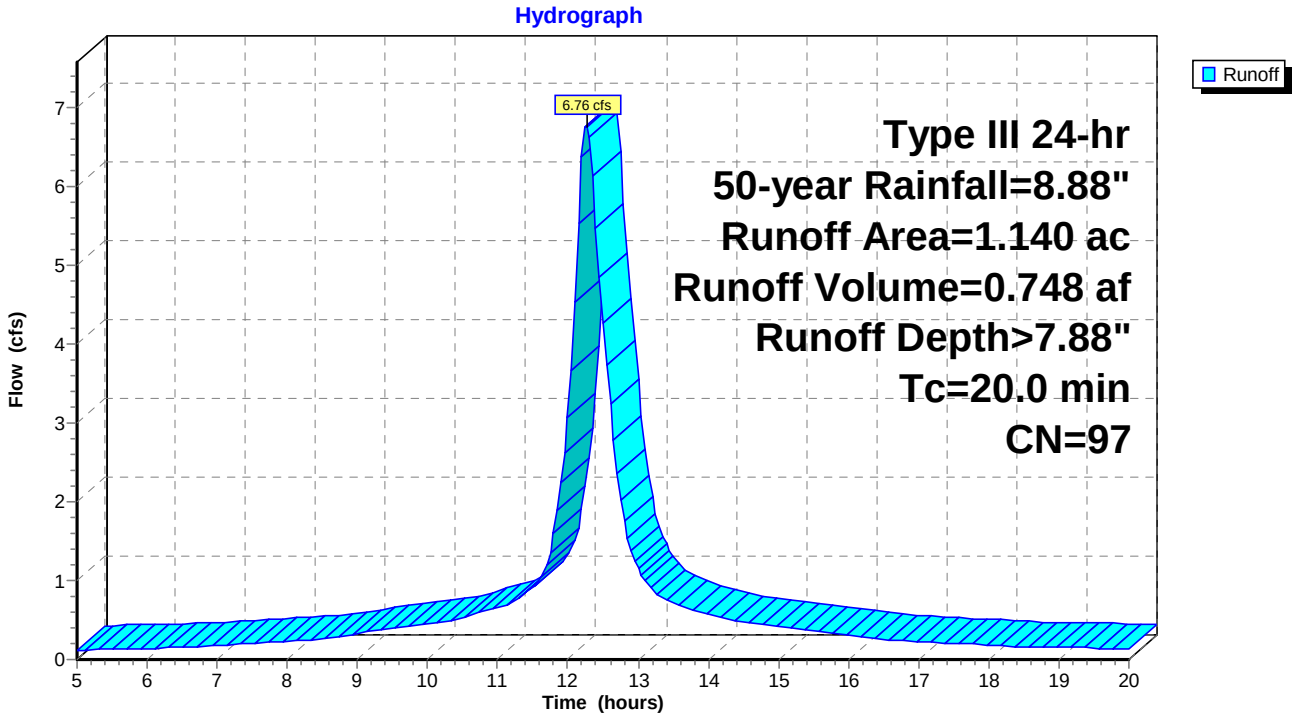
Runoff = 6.76 cfs @ 12.26 hrs, Volume= 0.748 af, Depth> 7.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-year Rainfall=8.88"

	Area (ac)	CN	Description
*	1.140	97	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Postdevelopment



Summary for Subcatchment 2S: Off-Site

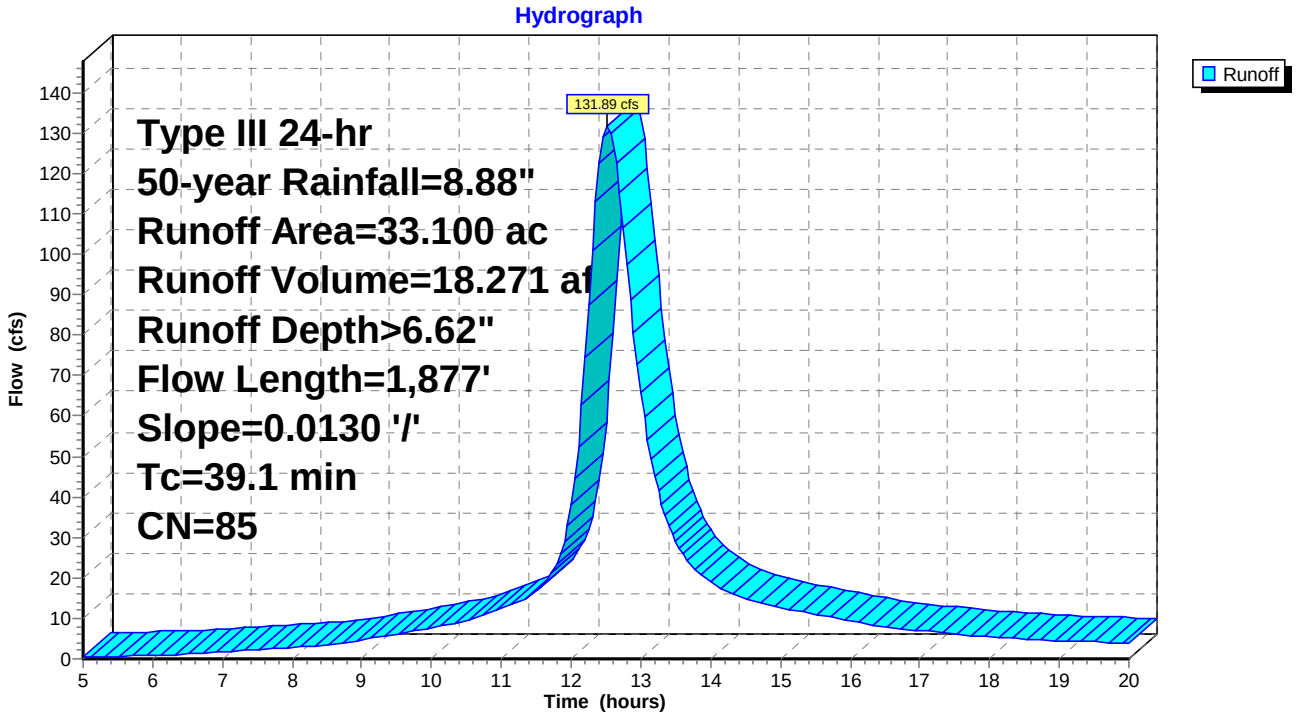
Runoff = 131.89 cfs @ 12.52 hrs, Volume= 18.271 af, Depth> 6.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-year Rainfall=8.88"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
1.100	80	>75% Grass cover, Good, HSG D
33.100	85	Weighted Average
25.100		75.83% Pervious Area
8.000		24.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 2S: Off-Site



Summary for Subcatchment 5S: post-development bypass

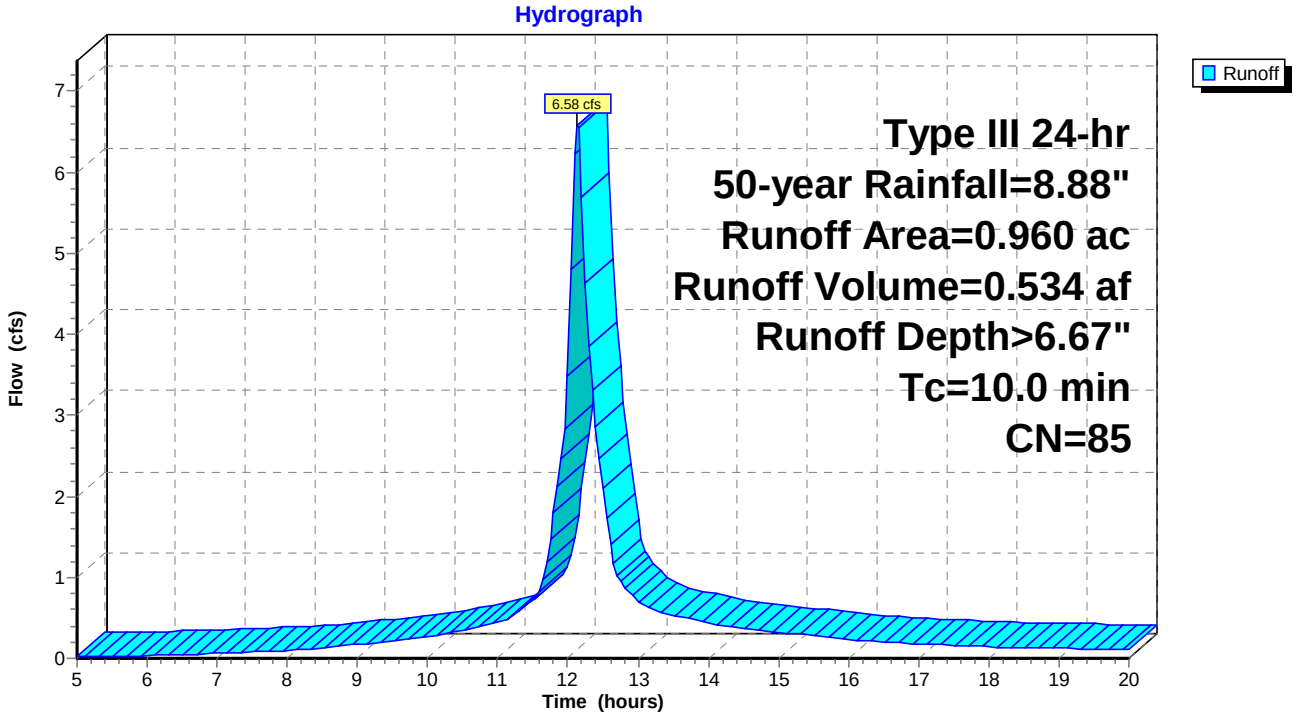
Runoff = 6.58 cfs @ 12.14 hrs, Volume= 0.534 af, Depth> 6.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 50-year Rainfall=8.88"

	Area (ac)	CN	Description
*	0.960	85	
	0.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: post-development bypass



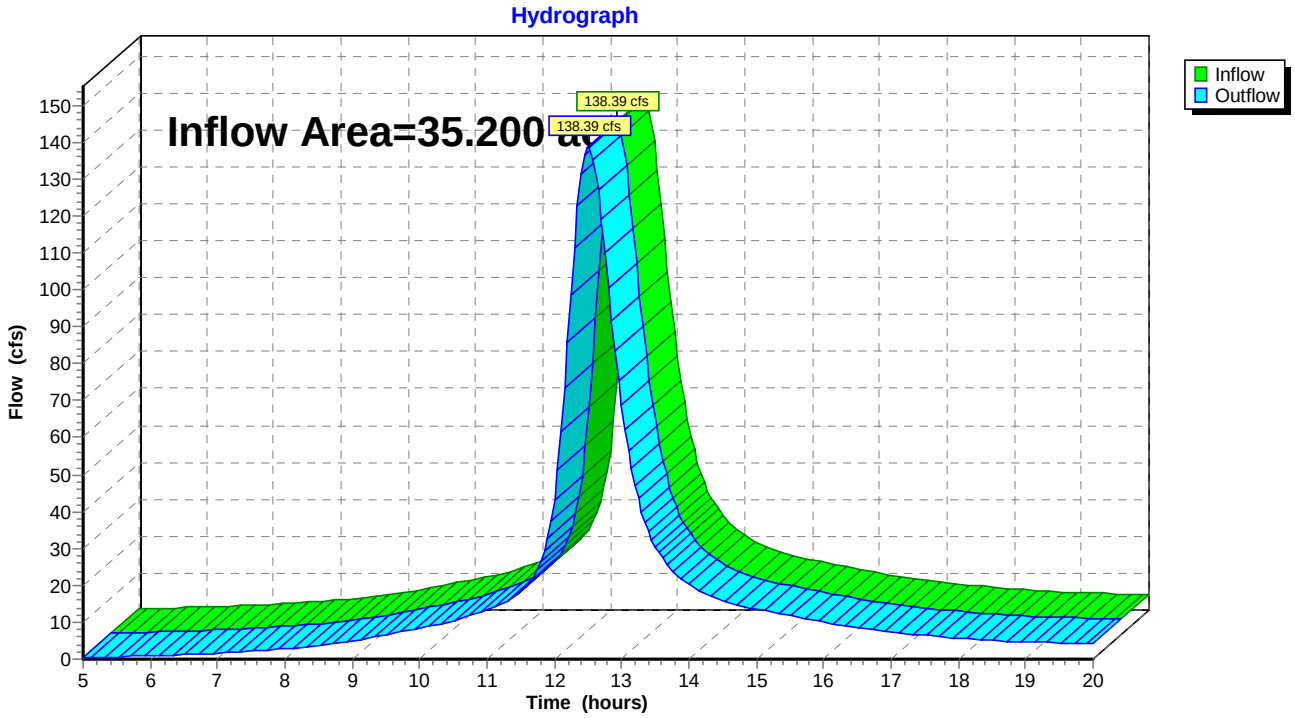
Summary for Reach 3R: Combined

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 35.200 ac, 22.73% Impervious, Inflow Depth > 6.64" for 50-year event
Inflow = 138.39 cfs @ 12.51 hrs, Volume= 19.490 af
Outflow = 138.39 cfs @ 12.51 hrs, Volume= 19.490 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: Combined



Summary for Pond 4P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.140 ac, 0.00% Impervious, Inflow Depth > 7.88" for 50-year event
Inflow = 6.76 cfs @ 12.26 hrs, Volume= 0.748 af
Outflow = 6.67 cfs @ 12.29 hrs, Volume= 0.686 af, Atten= 1%, Lag= 1.9 min
Primary = 6.67 cfs @ 12.29 hrs, Volume= 0.686 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 6.48' @ 12.29 hrs Surf.Area= 2,860 sf Storage= 5,476 cf

Plug-Flow detention time= 68.5 min calculated for 0.683 af (91% of inflow)
Center-of-Mass det. time= 39.5 min (784.0 - 744.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.50'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	4.00'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	**3.2' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.80'	**0.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.64 cfs @ 12.29 hrs HW=6.48' TW=3.50' (Fixed TW Elev= 3.50')
1=Sharp-Crested Rectangular Weir (Weir Controls 3.34 cfs @ 2.26 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 3.30 cfs @ 4.23 fps)

Pond 4P: Pond - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

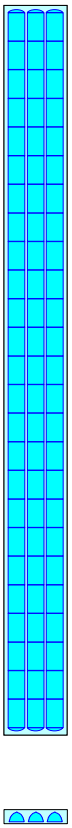
25 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 179.62' Row Length +12.0" End Stone x 2 = 181.62' Base Length
3 Rows x 51.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 15.75' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

75 Chambers x 45.9 cf = 3,445.5 cf Chamber Storage

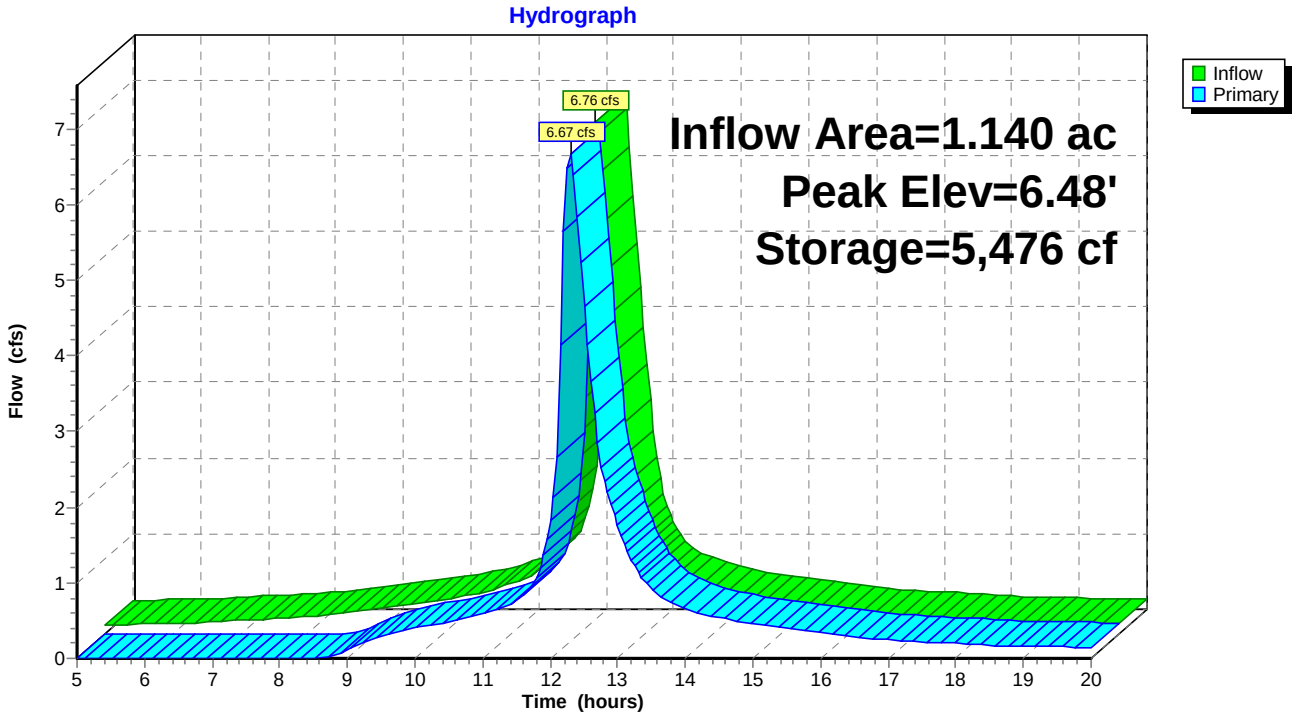
10,011.6 cf Field - 3,445.5 cf Chambers = 6,566.1 cf Stone x 40.0% Voids = 2,626.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,071.9 cf = 0.139 af
Overall Storage Efficiency = 60.6%
Overall System Size = 181.62' x 15.75' x 3.50'

75 Chambers
370.8 cy Field
243.2 cy Stone



Pond 4P: Pond


Hydrograph
Inflow
Primary
6.76 cfs
6.67 cfs
Inflow Area=1.140 ac
Peak Elev=6.48'
Storage=5,476 cf
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Postdevelopment Runoff Area=1.140 ac 0.00% Impervious Runoff Depth>8.75"
Tc=20.0 min CN=97 Runoff=7.49 cfs 0.831 af

Subcatchment 2S: Off-Site Runoff Area=33.100 ac 24.17% Impervious Runoff Depth>7.50"
Flow Length=1,877' Slope=0.0130 '/' Tc=39.1 min CN=85 Runoff=148.43 cfs 20.697 af

Subcatchment 5S: post-development bypass Runoff Area=0.960 ac 0.00% Impervious Runoff Depth>7.55"
Tc=10.0 min CN=85 Runoff=7.40 cfs 0.604 af

Reach 3R: Combined Inflow=155.65 cfs 22.070 af
Outflow=155.65 cfs 22.070 af

Pond 4P: Pond Peak Elev=6.54' Storage=5,546 cf Inflow=7.49 cfs 0.831 af
Outflow=7.41 cfs 0.768 af

Total Runoff Area = 35.200 ac Runoff Volume = 22.133 af Average Runoff Depth = 7.55"
77.27% Pervious = 27.200 ac 22.73% Impervious = 8.000 ac

Summary for Subcatchment 1S: Postdevelopment

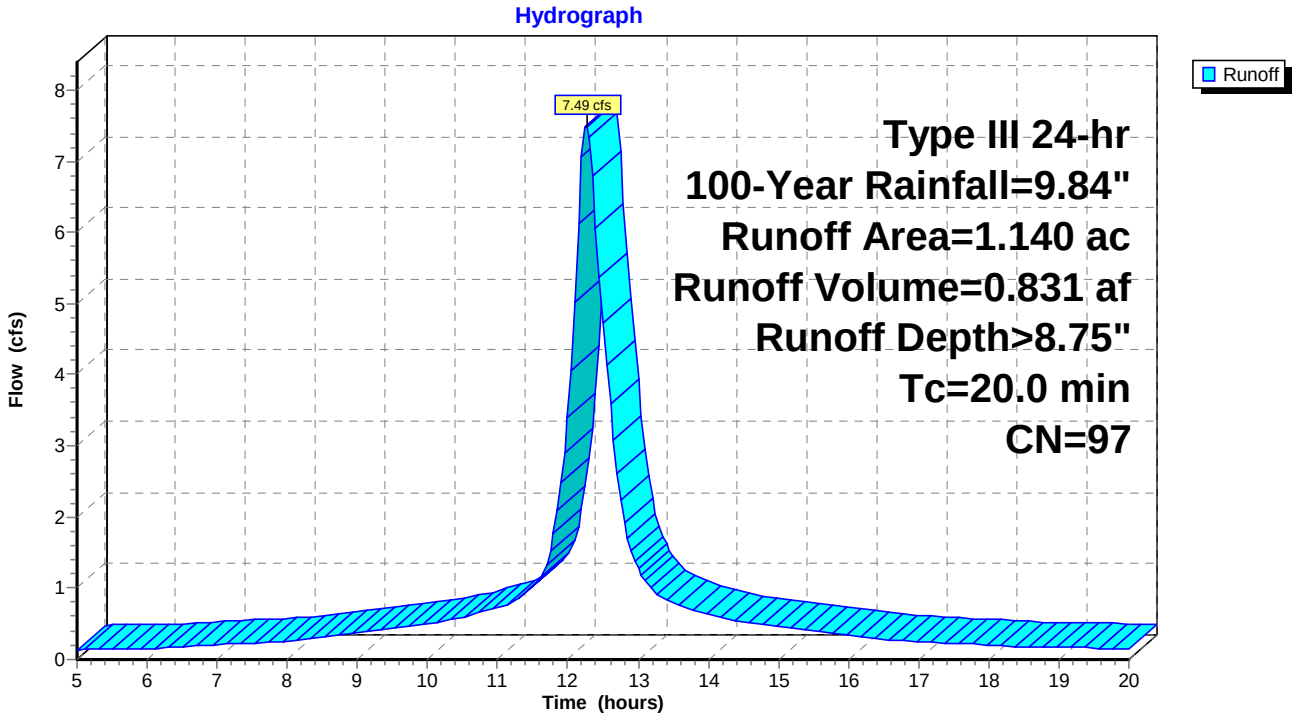
Runoff = 7.49 cfs @ 12.26 hrs, Volume= 0.831 af, Depth> 8.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.84"

	Area (ac)	CN	Description
*	1.140	97	
	1.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 1S: Postdevelopment



Summary for Subcatchment 2S: Off-Site

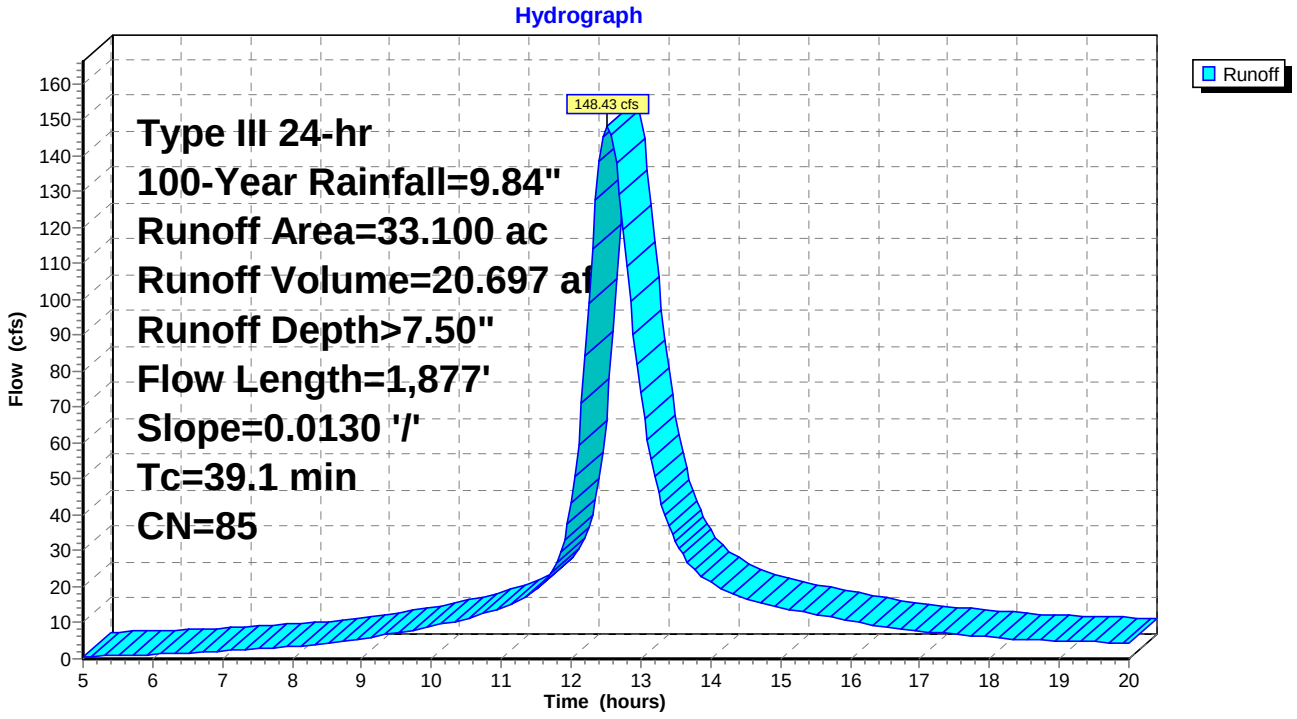
Runoff = 148.43 cfs @ 12.52 hrs, Volume= 20.697 af, Depth> 7.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.84"

Area (ac)	CN	Description
32.000	85	1/2 acre lots, 25% imp, HSG D
1.100	80	>75% Grass cover, Good, HSG D
33.100	85	Weighted Average
25.100		75.83% Pervious Area
8.000		24.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.1	1,877	0.0130	0.80		**Lag/CN Method,**

Subcatchment 2S: Off-Site



Summary for Subcatchment 5S: post-development bypass

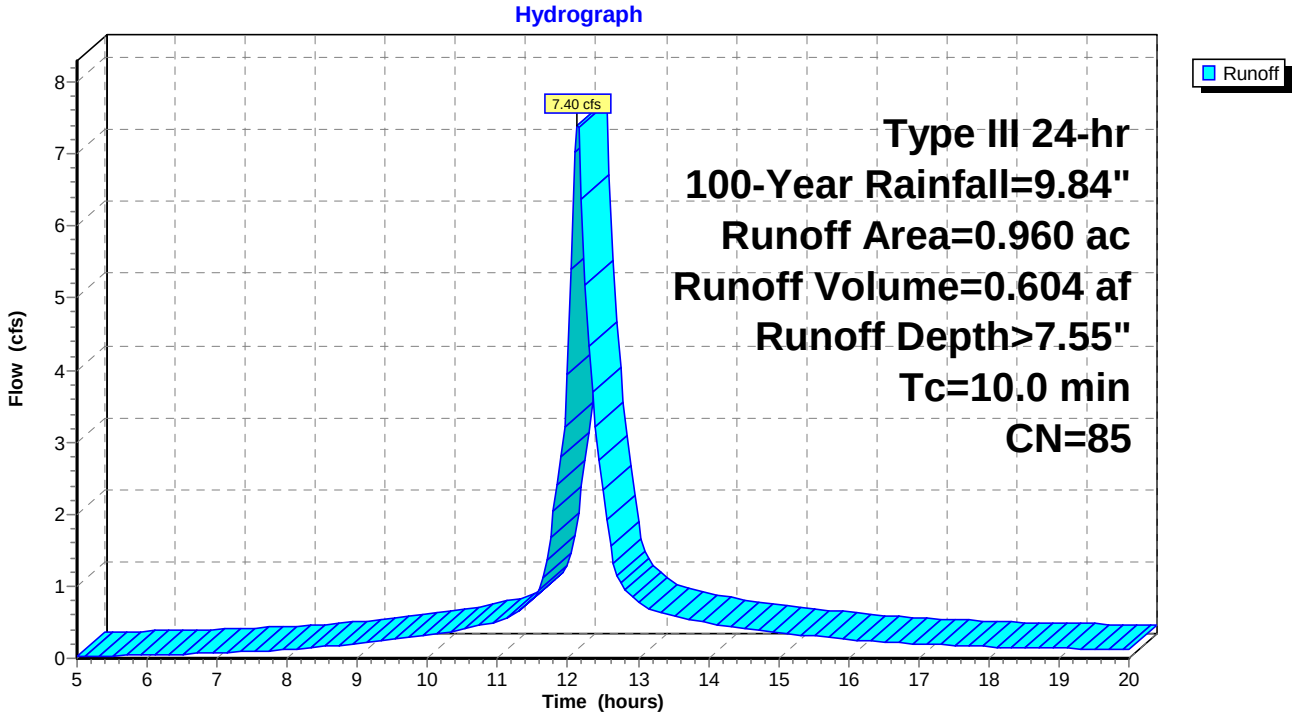
Runoff = 7.40 cfs @ 12.14 hrs, Volume= 0.604 af, Depth> 7.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=9.84"

	Area (ac)	CN	Description
*	0.960	85	
	0.960		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: post-development bypass



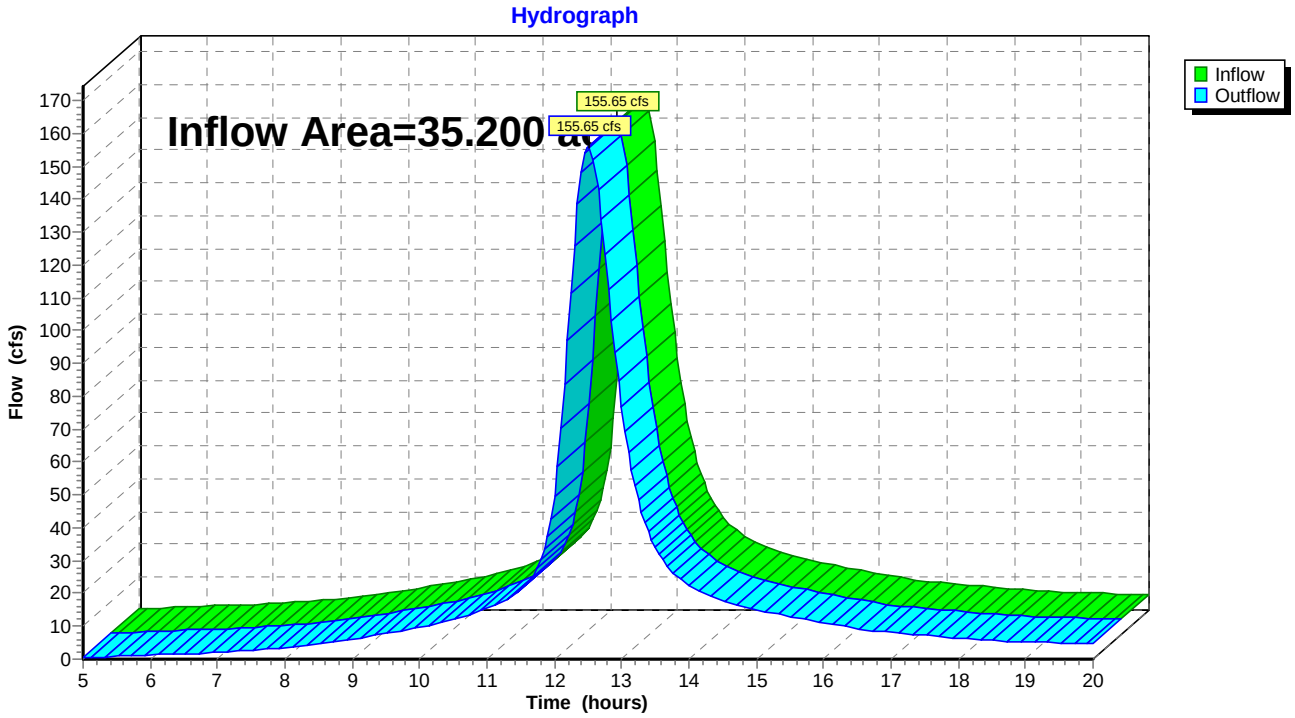
Summary for Reach 3R: Combined

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 35.200 ac, 22.73% Impervious, Inflow Depth > 7.52" for 100-Year event
Inflow = 155.65 cfs @ 12.50 hrs, Volume= 22.070 af
Outflow = 155.65 cfs @ 12.50 hrs, Volume= 22.070 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 3R: Combined



Summary for Pond 4P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow Area = 1.140 ac, 0.00% Impervious, Inflow Depth > 8.75" for 100-Year event
Inflow = 7.49 cfs @ 12.26 hrs, Volume= 0.831 af
Outflow = 7.41 cfs @ 12.29 hrs, Volume= 0.768 af, Atten= 1%, Lag= 1.7 min
Primary = 7.41 cfs @ 12.29 hrs, Volume= 0.768 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 6.54' @ 12.29 hrs Surf.Area= 2,860 sf Storage= 5,546 cf

Plug-Flow detention time= 64.5 min calculated for 0.768 af (92% of inflow)
Center-of-Mass det. time= 37.0 min (781.1 - 744.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	3.50'	2,626 cf	**15.75'W x 181.62'L x 3.50'H Field A** 10,012 cf Overall - 3,446 cf Embedded = 6,566 cf x 40.0% Voids
#2A	4.00'	3,446 cf	**ADS_StormTech SC-740 +Cap** x 75 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 25 Chambers
		6,072 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	6.00'	**3.2' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	4.80'	**0.8' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=7.37 cfs @ 12.29 hrs HW=6.54' TW=3.50' (Fixed TW Elev= 3.50')
1=Sharp-Crested Rectangular Weir (Weir Controls 3.98 cfs @ 2.40 fps)
2=Sharp-Crested Rectangular Weir (Weir Controls 3.39 cfs @ 4.31 fps)

Pond 4P: Pond - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-740 +Cap (ADS StormTech® SC-740 with cap length)
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
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51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

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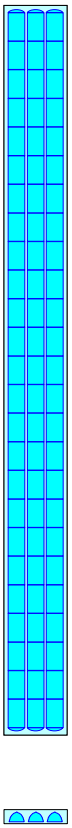
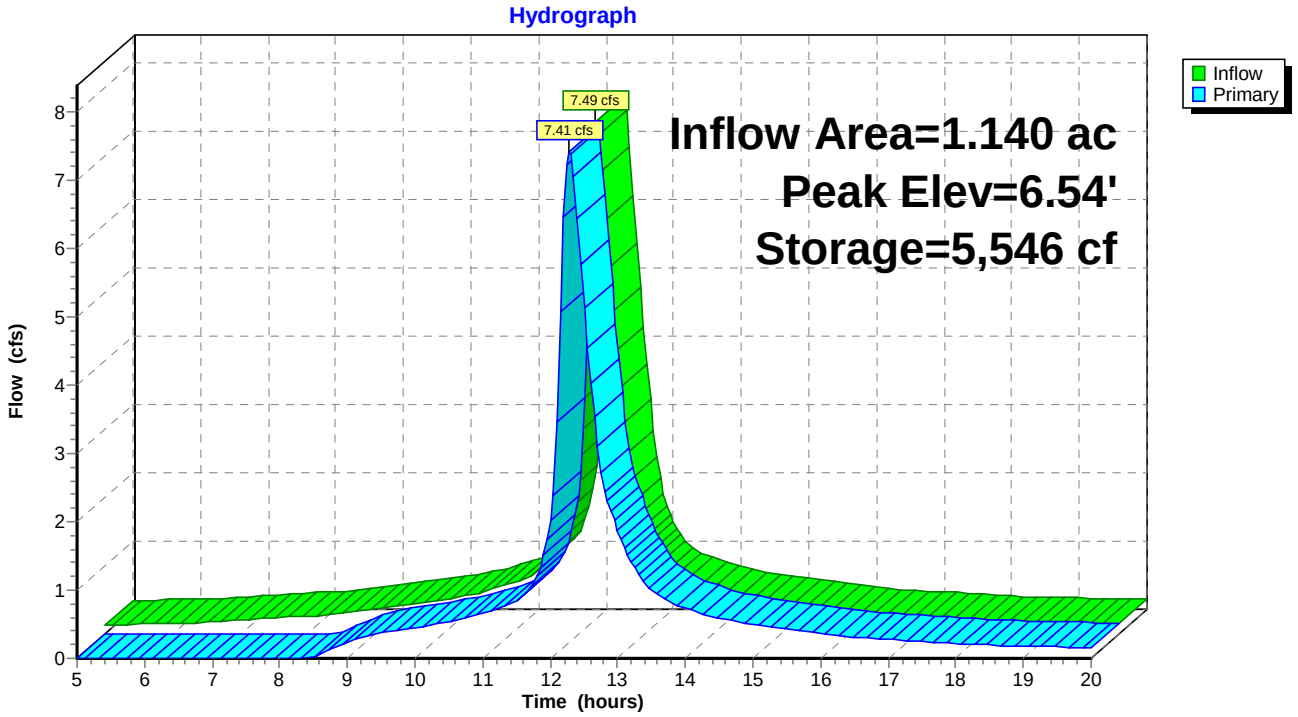


Pond 4P: Pond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